

# **TITLE 327 WATER POLLUTION CONTROL BOARD**

## **LSA Document #99-261(F)**

### **DIGEST**

Amends drinking water standards rules concerning analytical methods for radionuclides, variance and exemption rules, electronic reporting of drinking water monitoring data, clarification of reporting requirements, analytical methods for chemical and microbiological contaminants, and repeals outdated turbidity requirements and unregulated monitoring requirements. Repeals 327 IAC 8-2-6, 327 IAC 8-2-6.1, 327 IAC 8-2-23, 327 IAC 8-2-25, 327 IAC 8-2-26, 327 IAC 8-2-27, and 327 IAC 8-2-28. Effective 30 days after filing with the secretary of state.

### **HISTORY**

First Notice of Comment Period: #99-261 (WPCB) January 1, 2000, Indiana Register (23 IR 934).

First Notice of Comment Period: #00-15(WPCB) February 1, 2000, Indiana Register (23 IR 1234).

Second Notice of Comment Period and Notice of First Hearing: April 1, 2000, Indiana Register (23 IR 1756).

Date of First Hearing: May 10, 2000.

Publication of Proposed Rule and Notice of Second Hearing: July 1, 2000, Indiana Register (23 IR 2550).

Date of Second Hearing and Final Adoption: August 9, 2000.

Notice of Recall: March 1, 2001, Indiana Register (24 IR 1671).

Change in Notice of Public Hearing: March 1, 2001, Indiana Register (24 IR 1686).

<b>327 IAC 8-2-4.1</b>	<b>327 IAC 8-2-6.1</b>	<b>327 IAC 8-2-15</b>	<b>327 IAC 8-2-33</b>
<b>327 IAC 8-2-4.2</b>	<b>327 IAC 8-2-8</b>	<b>327 IAC 8-2-21</b>	<b>327 IAC 8-2-45</b>
<b>327 IAC 8-2-5.1</b>	<b>327 IAC 8-2-8.1</b>	<b>327 IAC 8-2-23</b>	<b>327 IAC 8-2-46</b>
<b>327 IAC 8-2-5.2</b>	<b>327 IAC 8-2-8.4</b>	<b>327 IAC 8-2-24</b>	<b>327 IAC 8-2.1-3</b>
<b>327 IAC 8-2-5.3</b>	<b>327 IAC 8-2-8.7</b>	<b>327 IAC 8-2-25</b>	
<b>327 IAC 8-2-5.5</b>	<b>327 IAC 8-2-10.1</b>	<b>327 IAC 8-2-26</b>	
<b>327 IAC 8-2-5.6</b>	<b>327 IAC 8-2-13</b>	<b>327 IAC 8-2-27</b>	
<b>327 IAC 8-2-6</b>	<b>327 IAC 8-2-14</b>	<b>327 IAC 8-2-28</b>	

SECTION 1. 327 IAC 8-2-4.1 IS AMENDED TO READ AS FOLLOWS:

#### **327 IAC 8-2-4.1 Collection of samples for inorganic chemical testing**

**Authority:** IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3; IC 13-18-16

**Affected:** IC 13-18

Sec. 4.1. (a) Community water systems shall conduct monitoring to determine compliance with the MCLs specified in section 4(a), 4(c), and 4(d) of this rule in accordance with this section. Nontransient noncommunity water systems shall conduct monitoring to determine compliance with the MCLs specified in section 4(a) and 4(d) of this rule in accordance with this section. Transient noncommunity water systems shall conduct monitoring to determine compliance with the MCLs specified in section 4(a) of this rule in accordance with this section.

(b) When a contaminant listed in section 4 of this rule exceeds the MCL, the supplier of water shall report to the commissioner under section 13 of this rule and shall give notice to the public under section 15 of this rule. Monitoring after public notification shall be at a frequency designated by the commissioner and shall continue until the MCL has not been exceeded in two (2) successive samples or until a monitoring schedule as a condition to a variance, exemption, or enforcement action shall become effective.

(c) Monitoring shall be conducted as follows:

(1) Ground water systems shall take a minimum of one (1) sample at every entry point to the distribution system which is representative of each well after treatment (hereafter

called a sampling point) beginning in the compliance period starting January 1, 1993. The system shall take each sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

(2) Surface water systems, including systems with a combination of surface and ground sources, shall take a minimum of one (1) sample at every entry point to the distribution system after any application of treatment or in the distribution system at a point which is representative of each source after treatment (hereafter called a sampling point) beginning in the compliance period beginning January 1, 1993. The system shall take each sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

(3) If a system draws water from more than one (1) source and the sources are combined before distribution, the system must sample at an entry point to the distribution system during periods of normal operating conditions, for example, when water is representative of all sources being used.

(4) The commissioner may reduce the total number of samples which must be analyzed by allowing the use of compositing. Composite samples from a maximum of five (5) samples are allowed, provided that the detection limit of the method used for analysis is less than one-fifth ( $1/5$ ) of the MCL. Compositing of samples must be completed in the laboratory **as follows:**

(A) When a composite sample is analyzed, if the concentration in the composite sample is greater than or equal to one-fifth ( $1/5$ ) of the MCL of any inorganic chemical, then a follow-up sample must be analyzed within fourteen (14) days at each sampling point included in the composite. These samples must be analyzed for the contaminants which exceeded one-fifth ( $1/5$ ) of the MCL in the composite sample. Detection limits for each analytical method and MCLs for each inorganic contaminant are the following:

<u>Contaminant</u>	<u>MCL</u> <u>(mg/l)</u>	<u>Methodology</u>	<u>Detection</u> <u>Limit</u> <u>(mg/l)</u>
Antimony	0.006	Atomic absorption; furnace	0.003
		Atomic absorption; platform	0.0008 <sup>5</sup>
		ICP-mass spectrometry	0.0004
		Hydride-atomic absorption	0.001

Asbestos	7 MFL <sup>1</sup>	Transmission electron microscopy	0.01 MFL
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Barium	2	Atomic absorption; furnace	0.002
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		Atomic absorption; direct aspiration	0.1
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		Inductively coupled plasma	0.002
			(0.001)
Beryllium	0.004	Atomic absorption; furnace	0.0002
		Atomic absorption; platform	0.00002 <sup>5</sup>
		Inductively coupled plasma <sup>2</sup>	0.0003
		ICP-mass spectrometry	0.0003
Cadmium	0.005	Atomic absorption; furnace	0.0001
		Inductively coupled plasma	0.001
Chromium	0.1	Atomic absorption; furnace	0.001
		Inductively coupled plasma	0.007
			(0.001)
Cyanide	0.2	Distillation, spectrophotometric <sup>3</sup>	0.02
		Distillation, automated spectrophotometric <sup>3</sup>	0.005
		Distillation, selective electrode <sup>3</sup>	0.05
		Distillation, amenable, spectrophotometric <sup>4</sup>	0.02
Fluoride	4.0	Colorimetric SPADNS; with distillation	0.1
		Potentiometric ion selective electrode	0.1
		Automated alizarin fluoride blue; with distillation (complexone)	0.05
		Automated ion selective electrode	0.1
Mercury	0.002	Manual cold vapor technique	0.0002
		Automated cold vapor technique	0.0002
Nitrate	10 (as N)	Manual cadmium reduction	0.01
		Automated hydrazine reduction	0.01
		Automated cadmium reduction	0.05
		Ion selective electrode	1
		Ion chromatography	0.01
Nitrite	1 (as N)	Spectrophotometric	0.01
		Automated cadmium reduction	0.05
		Manual cadmium reduction	0.01
		Ion chromatography	0.004
Selenium	0.05	Atomic absorption; furnace	0.002
		Atomic absorption; gaseous hydride	0.002
Thallium	0.002	Atomic absorption; furnace	0.001
		Atomic absorption; platform	0.0007 <sup>5</sup>
		ICP-mass spectrometry	0.0003

<sup>1</sup>MFL = million fibers per liter greater than ten (10) micrometers.

<sup>2</sup>Using a 2x preconcentration step as noted in Method 200.7. Lower method detection limits may be achieved when using a 4x preconcentration.

<sup>3</sup>Screening method for total cyanides.

<sup>4</sup>Measures "free" cyanides.

<sup>5</sup>Lower method detection limits are reported using stabilized temperature graphite furnace atomic absorption.

(B) If the population served by the system is greater than three thousand three hundred (3,300) persons, then compositing may only be permitted by the commissioner at sampling points within a single system. In systems serving less than or equal to three thousand three hundred (3,300) persons, the commissioner may permit compositing among different systems provided the five (5) sample limit is maintained.

(C) If duplicates of the original sample taken from each sampling point used in the composite **sample** are available, the system may use these instead of resampling. The duplicate must be analyzed and the results reported to the commissioner within fourteen (14) days ~~of collection~~. **after completing analysis of the composite sample, provided the holding time of the sample is not exceeded.**

(5) The frequency of monitoring for:

(A) asbestos shall be in accordance with subsection (d);

(B) antimony, barium, beryllium, cadmium, chromium, cyanide, fluoride, nickel, mercury, selenium, and thallium shall be in accordance with subsection (e);

(C) nitrate shall be in accordance with subsection (f);

(D) nitrite shall be in accordance with subsection (g); and

(E) arsenic shall be in accordance with subsection (i).

(d) The frequency of monitoring conducted to determine compliance with the MCL for asbestos specified in section 4(d) of this rule shall be conducted as follows:

(1) Each community and nontransient noncommunity water system is required to monitor for asbestos during the first three (3) year compliance period of each nine (9) year compliance cycle beginning in the compliance period starting January 1, 1993.

(2) If the system believes it is not vulnerable to either asbestos contamination in its source water or due to corrosion of asbestos-cement pipe, or both, it may apply to the commissioner for a waiver of the monitoring requirement in subdivision (1). If the commissioner grants the waiver, the system is not required to monitor.

(3) The commissioner may grant a waiver based upon a consideration of the following factors:

(A) Potential asbestos contamination of the water source.

(B) The use of asbestos-cement pipe for finished water distribution and the corrosive nature of the water.

(4) A waiver remains in effect for the initial monitoring of the first three (3) year compliance period. Systems not receiving a waiver must monitor in accordance with the provisions of subdivision (1).

(5) A system vulnerable to asbestos contamination due solely to corrosion of asbestos-cement pipe shall take one (1) sample at a tap served by asbestos-cement pipe and under conditions where asbestos contamination is most likely to occur.

(6) A system vulnerable to asbestos contamination due solely to source water shall monitor in accordance with the provision of subsection (c).

(7) A system vulnerable to asbestos contamination due both to its source water supply and corrosion of asbestos-cement pipe shall take one (1) sample at a tap served by asbestos-cement pipe and under conditions where asbestos contamination is most likely to occur.

(8) A system which exceeds the MCLs as determined in section 4 of this rule shall monitor quarterly beginning in the next quarter after the violation occurred.

(9) The commissioner may decrease the quarterly monitoring requirement to the frequency specified in subdivision (1) provided the commissioner has determined that the system is reliably and consistently below the MCL. In no case can the commissioner make this determination unless a ground water system takes a minimum of two (2) quarterly samples and a surface (or combined surface/ground) water system takes a minimum of four (4) quarterly samples.

(10) If monitoring data collected after January 1, 1990, are generally consistent with the requirements of this subsection, then the commissioner may allow systems to use that data to satisfy the monitoring requirement for the initial compliance period beginning January 1, 1993.

(e) The frequency of monitoring conducted for nickel and to determine compliance with the MCLs in section 4 of this rule for antimony, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium, and thallium shall be as follows:

(1) Ground water systems shall take one (1) sample at each sampling point during each compliance period. Surface water systems (or combined surface/ground) shall take one (1) sample annually at each sampling point.

(2) The system may apply to the commissioner for a waiver from the monitoring frequencies specified in subdivision (1).

(3) A condition of the waiver shall require that a system take a minimum of one (1) sample while the waiver is effective. The term during which the waiver is effective shall not exceed one (1) compliance cycle which is nine (9) years.

(4) The commissioner may grant a waiver provided surface water systems have monitored annually for at least three (3) years and ground water systems have conducted a minimum of three (3) rounds of monitoring. (At least one (1) sample shall have been taken since January 1, 1990.) Both surface and ground water systems shall demonstrate that all previous analytical results were less than the maximum contaminant level. Systems that use a new water source are not eligible for a waiver until three (3) rounds of monitoring from the new source have been completed. The commissioner may grant a public water system a waiver for monitoring of cyanide, provided that the commissioner determines that the system is not vulnerable due to lack of any industrial source of cyanide.

(5) In determining the appropriate reduced monitoring frequency, the commissioner shall consider the following:

(A) Reported concentrations from all previous monitoring.

(B) The degree of variation in reported concentrations.

(C) Other factors which may affect contaminant concentrations such as:

(i) changes in ground water pumping rates;

(ii) changes in the system's configuration;

(iii) changes in the system's operating procedures; or

(iv) changes in stream flows or characteristics.

(6) A decision by the commissioner to grant a waiver shall be made in writing and shall set forth the basis for the determination. The determination may be initiated by the commissioner or upon an application by the public water system. The public water system shall specify the basis for its request. The commissioner shall review and, where appropriate, revise the determination of the appropriate monitoring frequency when the system submits new monitoring data or when other data relevant to the system's appropriate monitoring frequency becomes available.

(7) Systems which exceed the MCLs as calculated in subsection (k) shall monitor quarterly beginning in the next quarter after the violation occurred.

(8) The commissioner may decrease the quarterly monitoring requirement to the frequencies specified in subdivisions (1) and (2) provided it has determined that the system is reliably and consistently below the MCL. In no case can the commissioner make this determination unless a ground water system takes a minimum of two (2) quarterly samples and a surface water system takes a minimum of four (4) quarterly samples.

(f) All public water systems (community, nontransient noncommunity, and transient noncommunity systems) shall monitor to determine compliance with the MCL for nitrate in section 4(a) of this rule under the following monitoring schedules:

(1) Community and nontransient noncommunity water systems served by ground water systems shall monitor annually beginning January 1, 1993; systems served by surface water shall monitor quarterly beginning January 1, 1993.

(2) For community and nontransient noncommunity water systems, the repeat monitoring frequency for ground water systems shall be quarterly for at least one (1) year following any one (1) sample in which the concentration is greater than or equal to fifty percent (50%) of the MCL. The commissioner may allow a ground water system to reduce the sampling frequency to annually after four (4) consecutive quarterly samples are reliably and consistently less than the MCL.

(3) For community and nontransient noncommunity water systems, the commissioner may allow a surface water system to reduce the sampling frequency to annually if all analytical results from four (4) consecutive quarters are less than fifty percent (50%) of

the MCL. A surface water system shall return to quarterly monitoring if any one (1) sample is greater than or equal to fifty percent (50%) of the MCL.

(4) Each transient noncommunity water system shall monitor annually beginning January 1, 1993.

(5) After the initial round of quarterly sampling is completed, each community and nontransient noncommunity system which is monitoring annually shall take subsequent samples during the quarter which previously resulted in the highest analytical result.

(g) All public water systems (community, nontransient noncommunity, and transient noncommunity systems) shall monitor to determine compliance with the MCL for nitrite in section 4(a) of this rule under the following monitoring schedules:

(1) All public water systems shall take one (1) sample at each sampling point in the compliance period beginning January 1, 1993, and ending December 31, 1995.

(2) After the initial sample, systems where an analytical result for nitrite is less than fifty percent (50%) of the MCL shall monitor at the frequency specified by the commissioner.

(3) For community, nontransient noncommunity, and transient noncommunity water systems, the repeat monitoring frequency for any water system shall be quarterly for at least one (1) year following any one (1) sample in which the concentration is greater than or equal to fifty percent (50%) of the MCL. The commissioner may allow a system to reduce the sampling frequency from quarterly to annually after determining the system is reliably and consistently less than the MCL.

(4) Systems which are monitoring annually shall take each subsequent sample during the quarter which previously resulted in the highest analytical result.

(h) Confirmation sampling shall be as follows:

(1) Where the results of sampling for antimony, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium, or thallium indicate the MCL has been exceeded, the commissioner may require that one (1) additional sample be collected as soon as possible after the initial sample was taken (but not to exceed two (2) weeks) at the same sampling point.

(2) Where nitrate or nitrite sampling results indicate the MCL has been exceeded, the system shall take a confirmation sample within twenty-four (24) hours of the system's receipt of notification of the analytical results of the first sample. Systems unable to comply with the twenty-four (24) hour sampling requirement must immediately notify the consumers served by the public water system in accordance with section 15 of this rule. Systems exercising this option must take and analyze a confirmation sample within two (2) weeks of notification of the analytical results of the first sample.

(3) If a commissioner-required confirmation sample is taken for any contaminant, the results of the initial and confirmation sample shall be averaged. The resulting average shall be used to determine the system's compliance in accordance with subsection (k). The commissioner has the discretion to delete results of obvious sampling errors.

(i) The commissioner may require more frequent monitoring than specified in subsections (d) through (g) or may require confirmation samples for positive and negative results.

(j) Systems may apply to the commissioner to conduct more frequent monitoring than the minimum monitoring frequencies specified in this section.

(k) Compliance with section 4 of this rule shall be determined based on the analytical results obtained at each sampling point in the following manner:

(1) For systems which are conducting monitoring at a frequency greater than annual, compliance with the MCLs for antimony, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium, or thallium is determined by a running annual average at each sampling point. If the average at any sampling point is greater than the MCL, then the system is out of compliance. If any one (1) sample would cause the annual average to be exceeded, then the system is out of compliance immediately. Any sample below the method detection limit shall be calculated at zero (0) for the purpose of determining the annual average.

(2) For systems which are monitoring annually, or less frequently, the system is out of compliance with the MCLs for antimony, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium, or thallium if the level of a contaminant

at any sampling point is greater than the MCL. If a confirmation sample is required by the commissioner, the determination of compliance will be based on the average of the two (2) samples.

(3) Compliance with the MCLs for nitrate and nitrite is determined based on one (1) sample if the levels of these contaminants are below the MCLs. If the levels of nitrate and/or nitrite exceed the MCLs in the initial sample, a confirmation sample is required in accordance with subsection (h)(2), and compliance shall be determined based upon the average of the initial and confirmation samples.

(4) If a public water system has a distribution system separable from other parts of the distribution system with no interconnections, the commissioner may allow the system to give public notice to only the area served by that portion of the system which is out of compliance.

(1) The frequency of monitoring conducted to determine compliance with the MCL for arsenic shall be as follows:

(1) Analyses for all community water systems utilizing surface water sources shall be sampled annually.

(2) Analyses for all community water systems utilizing only ground water sources shall be repeated at three (3) year intervals.

(3) The commissioner has the authority to determine compliance or initiate enforcement action based on analytical results.

(4) If the result of an analysis conducted as required in this section indicates that the results exceed the MCL as determined in section 4 of this rule, the supplier of water shall report to the state within seven (7) days and initiate three (3) additional analyses at the same sampling point within one (1) month.

(5) When the average of four (4) analyses made pursuant to this section, rounded to the same number of significant figures as the MCL for the arsenic, exceeds the MCL, the supplier of water shall notify the commissioner and give notice to the public under section 16 of this rule. Monitoring after public notification shall be at a frequency set by the commissioner and shall continue until the MCL has not been exceeded in two (2) consecutive samples or until a monitoring schedule as a condition to a variance, exemption, or enforcement action shall become effective.

(m) Each public water system shall monitor at the time designated by the commissioner during each compliance period.

(n) Sample collection for antimony, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, nitrate, nitrite, selenium, and thallium under this section shall be conducted using the sample preservation, container, and maximum holding time procedures specified in the following table:

<u>Contaminant</u>	<u>Preservative<sup>3</sup></u>	<u>Container<sup>1</sup></u>	<u>Time<sup>2</sup></u>
Antimony	<del>Cone</del> HNO <sub>3</sub> to pH <2 3	P or G	6 months
Asbestos	<del>Cool</del> , 4°C	P or G	48 hours <sup>4</sup>
Barium	<del>Cone</del> HNO <sub>3</sub> to pH <2	P or G	6 months
Beryllium	<del>Cone</del> HNO <sub>3</sub> to pH <2	P or G	6 months
Cadmium	<del>Cone</del> HNO <sub>3</sub> to pH <2	P or G	6 months
Chromium	<del>Cone</del> HNO <sub>3</sub> to pH <2	P or G	6 months
Cyanide	<del>Cool</del> , 4°C, NaOH to pH >12 <sup>3</sup>	P or G	14 days
Fluoride	none	P or G	1 month
Mercury	<del>Cone</del> HNO <sub>3</sub> to pH <2	P or G	28 days
Nickel	<del>Cone</del> HNO <sub>3</sub> to pH <2	P or G	6 months
Nitrate	4°C	<b>P or G</b>	<b>48 hours<sup>5</sup></b>
<del>Chlorinated</del>	<del>Cool</del> , 4°C	<del>P or G</del>	<del>28 days</del>
Nonchlorinated	Cone H <sub>2</sub> SO <sub>4</sub> to pH <2	P or G	14 days

Nitrate-Nitrite 6	H <sub>2</sub> SO <sub>4</sub>	P or G	28 days
Nitrite	Cool, 4 °C	P or G	48 hours
Selenium	<del>Cone</del> HNO <sub>3</sub> to pH <2	P or G	6 months
Thallium	<del>Cone</del> HNO <sub>3</sub> to pH <2	P or G	6 months

<sup>1</sup>P = Plastic, hard or soft; G = glass.

<sup>2</sup>In all cases, samples should be analyzed as soon after collection as possible. **Follow additional (if any) information on preservation, containers, or holding times that is specified in method.**

<sup>3</sup>~~See method for information for preservation.~~ **When indicated, samples must be acidified at the time of collection to pH < 2 with concentrated acid or adjusted with sodium hydroxide to pH > 12. When chilling is indicated the sample must be shipped and stored at four (4) degrees Celsius or less.**

<sup>4</sup>~~Forty-eight (48) hours until processed for analysis.~~ **Instructions for containers, preservation procedures, and holding times as specified in Method 100.2 must be adhered to for all compliance analyses including those conducted with Method 100.1.**

<sup>5</sup>**If the sample is chlorinated, the holding time for an unacidified sample kept at four (4) degrees Celsius is extended to fourteen (14) days.**

<sup>6</sup>**Nitrate-Nitrite refers to a measurement of total nitrate.**

*(Water Pollution Control Board; 327 IAC 8-2-4.1; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1007; filed Aug 24, 1994, 8:15 a.m.: 18 IR 23; filed Aug 25, 1997, 8:00 a.m.: 21 IR 34; errata filed Dec 10, 1997, 3:45 p.m.: 21 IR 1347)*

SECTION 2. 327 IAC 8-2-4.2 IS AMENDED TO READ AS FOLLOWS:

**327 IAC 8-2-4.2 Analytical methods for inorganic chemical testing**

**Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3; IC 13-18-16**

**Affected: IC 13-11-2; IC 13-14-8; IC 13-18-1; IC 13-18-2**

Sec. 4.2. (a) Analyses conducted to determine compliance with section 4 of this rule shall be made in accordance with one (1) of the following methods for each contaminant:

(1) Antimony as follows:

- (A) Atomic absorption; furnace, Method 3113B\*.
- (B) Atomic absorption; platform, Method 200.9\*.
- (C) ICP-mass spectrometry, Method 200.8\*.
- (D) Hydride-atomic absorption, Method D-3697-92\*.

(2) Arsenic as follows:

- (A) Atomic absorption; furnace, Method D-2972-93C\* or Method 3113B\*.
- (B) ~~Atomic absorption-gaseous~~ Hydride **Atomic Adsorption**, Method D-2972-93B\* or Method 3114B\*.
- (C) Atomic absorption, platform, Method 200.9\*.
- (D) Inductively coupled plasma technique, Method 200.7\* or Method 3120B\*.
- (E) ICP-mass spectrometry, Method 200.8\*.

(3) Asbestos, transmission electron microscopy, Method 100.1\* or Method 100.2\*.

(4) Barium as follows:

- (A) Atomic absorption; furnace, Method 3113B\*.
- (B) Atomic absorption; direct, Method 3111D\*.
- (C) Inductively coupled plasma, Method 200.7\* or Method 3120B\*.
- (D) ICP-mass spectrometry, Method 200.8\*.

(5) Beryllium as follows:

- (A) Atomic absorption; furnace, Method D-3645-93B or Method 3113B.
- (B) Atomic absorption; platform, Method 200.9\*.
- (C) Inductively coupled plasma, Method 200.7\* or Method 3120B\*.
- (D) ICP-mass spectrometry, Method 200.8.

(6) Cadmium as follows:



- (A) Atomic absorption; furnace, Method 3113B\*.
- (B) Inductively coupled plasma, Method 200.7\*.
- (C) ICP-mass spectrometry, Method 200.8\*.
- (D) Atomic absorption; platform, Method 200.9\*.
- (7) Chromium as follows:
  - (A) Atomic absorption; furnace, Method 3113B\*.
  - (B) Inductively coupled plasma, Method 200.7\* or Method 3120B\*.
  - (C) ICP-mass spectrometry, Method 200.8\*.
  - (D) Atomic absorption; platform, Method 200.9\*.
- (8) Cyanide as follows:
  - (A) Manual distillation followed by:
    - (i) Spectrophotometric; amenable, Method D-2036-91B\* or Method ~~4500-CN-G~~. **4500-CN<sup>-</sup>G\***.
    - (ii) Spectrophotometric; manual, Method D-2036-91A\*, Method ~~4500-CN-E~~, **4500-CN<sup>-</sup>E\***, or Method I-3300-85\*.
    - (iii) Spectrophotometric; semiautomated, Method 335.4\*.
    - (iv) Method ~~4500-CN-C~~. **4500-CN<sup>-</sup>C\***.
    - (v) **Method D-2036-91A\***.
  - (B) Selective electrode, Method 4500-CN-F\*.
- (9) Fluoride as follows:
  - (A) Ion chromatography, Method 300.0\*, Method D-4327-91\*, or Method 4110B\*.
  - (B) Manual distillation; color. SPADNS, Method ~~4500F-B-D~~. **4500F<sup>-</sup>B, D\***.
  - (C) Manual electrode, Method D1179-93B\* or Method ~~4500F-C~~. **4500F<sup>-</sup>C\***.
  - (D) Automated electrode, Method 380-75WE\*.
  - (E) Automated alizarin, Method ~~4500F-E~~ **4500F<sup>-</sup>E\*** or Method 129-71W\*.
- (10) Mercury as follows:
  - (A) Manual cold vapor, ~~technique~~, Method 245.1, Method D3223-91\*, or Method 3112B\*.
  - (B) Automated cold vapor, ~~technique~~, Method 245.2\*.
  - (C) ICP-mass spectrometry, Method 200.8\*.
- (11) Nickel as follows:
  - (A) Atomic absorption; furnace, Method 3113B\*.
  - (B) Atomic absorption; platform, Method 200.9.
  - (C) Atomic absorption; direct, Method 3111B\*.
  - (D) Inductively coupled plasma, Method 200.7\* Method 3120B\*.
  - (E) ICP-mass spectrometry, Method 200.8\*.
- (12) Nitrate as follows:
  - (A) Manual cadmium reduction, Method D3867-90B\* or Method 4500-NO<sub>3</sub>-E\*.
  - (B) Automated cadmium reduction, Method 353.2\*, Method D3867-90A\*, or Method 4500-NO<sub>3</sub>-F\*.
  - (C) Ion selective electrode, Method 4500-NO<sub>3</sub>-D\* or Method 601\*.
  - (D) Ion chromatography, Method 300.0\*, Method D4327-91\*, Method 4110B\*, or Method B-1011\*.
- (13) Nitrite as follows:
  - (A) Ion chromatography, Method 300.0\*, Method D4327-91\*, Method 4110B\*, or Method B-1011\*.
  - (B) Automated cadmium reduction, Method 353.2\*, Method D3867-90A\*, or Method 4500-NO<sub>3</sub>-F\*.
  - (C) Manual cadmium reduction, Method D3867-90B\* or Method 4500-NO<sub>3</sub>-E\*.
  - (D) Spectrophotometric, Method 4500-NO<sub>2</sub>-B\*.
- (14) Selenium as follows:
  - (A) Hydride-atomic absorption, Method D3859-93A\* or Method 3114B\*.
  - (B) ICP-mass spectrophotometry, Method 200.8\*.
  - (C) Atomic ~~adsorption~~; **absorption**; platform, Method 200.9\*.
  - (D) Atomic ~~adsorption~~; **absorption**; furnace, Method D3859-93B\* or Method 3113B\*.
- (15) Thallium as follows:
  - (A) Atomic absorption; platform, Method 200.9\*.
  - (B) ICP-mass spectrometry, Method 200.8\*.

(b) Analysis under this section shall only be conducted by laboratories that have been certified by EPA or the commissioner. Laboratories may conduct sample analyses under provisional certification until January 1, 1996. To receive certification to conduct analyses for antimony, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, nitrate, nitrite, selenium, and thallium, the laboratory must do the following:

(1) **Successfully** analyze performance evaluation (PE) samples ~~which include those substances provided by EPA, Environmental Monitoring Systems Laboratory or equivalent samples provided by the commissioner, or by a third party with approval of the EPA or the commissioner, at least once a year.~~

(2) **For each contaminant that has been included in the PE sample and for each method for which the laboratory desires certification** achieve quantitative results on the analyses that are within the following acceptance limits:

Contaminant	Acceptance Limit
Antimony	±30% at 0.006 mg/l
Arsenic	2 standard deviations based on study statistics
Asbestos	2 standard deviations based on study statistics
Barium	±15% at 0.15 mg/l
Beryllium	±15% at 0.001 mg/l
Cadmium	±20% at 0.002 mg/l
Chromium	±15% at 0.01 mg/l
Cyanide	±25% at 0.1 mg/l
Fluoride	±10% at 1 to 10 mg/l
Mercury	±30% at 0.0005 mg/l
Nickel	±15% at 0.01 mg/l
Nitrate	±10% at 0.4 mg/l
Nitrite	±15% at 0.4 mg/l
Selenium	±20% at 0.01 mg/l
Thallium	±30% at 0.002 mg/l

\*Methods referenced in this section may be obtained as follows:

(1) Method 245.2, ~~may be obtained from the U.S. EPA, EMSL, Cincinnati, Ohio 45268. The identical methods were formerly in "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983, available at NTIS, PB84-128677.~~

(2) Methods 200.8, 200.9, 200.7, and 245.1 may be found in "Methods for the Determination of Metals in Environmental Samples Supplement I", EPA-600/94-111, May 1994, available from NTIS, ~~PB94-184942~~, **PB95-125472**, 800-553-6847.

(3) Methods D-3697-92, D-2972-93C, D-2972-93B, D-3645-93B, D2036-91B, D2036-91A, D4327-91, D1179-93B, D3223-91, D3867-90A, D3867-90B, D3859-93A, and D3859-93B, may be found in "Annual Book of ASTM Standards", 1994 **and 1996**, Vols. 11.01 and 11.02, American Society for Testing and Materials, available from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.

(4) Methods 3113B, 3120B, 3114B, 3111D, ~~4500-CN-C, 4500-CN-G, 4500-CN-E, 4500-CN-F, 4500-CN-C, 4500-CN-G, 4500-CN-E, 4500-CN-F, 4110B, 4500F-B,D, 4500F-C, 4500F-E, 4500F-B, D, 4500F-C, 4500F-E, 3112B, 3111B, 4500-NO<sub>3</sub>-F, & 4500-NO<sub>3</sub>-D, 4500-NO<sub>3</sub>-E, and 4500-NO<sub>2</sub>-B~~ may be found in "18th Edition of Standard Methods for the Examination of Water and Wastewater", 1992, **or "19<sup>th</sup> Edition of Standard Methods for the Examination of Water and Wastewater", 1995**, American Public Health Association, available from the American Public Health Association, 1015 Fifteenth Street NW, Washington, D.C. 20005. **Either edition may be used.**

(5) Method I-3300-85 may be found in ~~Books and Open File Reports Section, Techniques of Water Resources Investigation of the U.S. Geological Survey, Book 5, Chapter A-1, 3<sup>rd</sup> Edition, 1989, available from Information Services, U.S. Geological Survey, Federal Center, Box 25425, 25286, Denver, Colorado 80225-0425.~~

(6) Methods 335.4, 300.0, and 353.2 may be found in "Methods for the Determination of Inorganic Substances in Environmental Samples", EPA-600/R-93-100, August 1993, available from NTIS, ~~PB94-121811~~, **PB94-120821**.

(7) Method 601 may be found in Technical Bulletin 601 "Standard Method of Test for Nitrate in Drinking Water", July 1994, PN 221890-001, Analytical Technology, Inc., available from ATI Orion, 529 Main Street, Boston, Massachusetts 02129.

(8) Method B-1011 may be found in "Waters Test Method for Determination of Nitrate/Nitrite in Water Using Single Column Ion Chromatography", ~~Millipore~~

~~Corporation, Waters Chromatography Division, August 1987, available from Waters Corporation, 34 Maple Street, Milford, Massachusetts 01757.~~

(9) Method 100.1 may be found in "Analytical Methods for Determination of Asbestos Fibers in Water", EPA-600/4-83-043, EPA, September 1983, available from NTIS, PB83-260471.

(10) Method 100.2 may be found in "Determination of Asbestos Structure Over 10- m in Length in Drinking Water", EPA-600/R-94-134, June 1994, available from NTIS, PB94-201902.

(11) Method 129-71W may be found in "Fluoride in Water and Wastewater", December 1972, Technicon Industrial Systems, available from ~~Technicon Industrial Systems, Tarrytown, New York 10591.~~ **Bran & Luebbe, 1025 Busch Parkway, Buffalo Grove, Illinois 60089.**

(12) Method 380-75WE may be found in "Fluoride in Water and Wastewater", February 1976, Technicon Industrial Systems, available from ~~Technicon Industrial Systems, Tarrytown, New York 10591.~~ **Bran & Luebbe, 1025 Busch Parkway, Buffalo Grove, Illinois 60089.**

These methods are also available for copying at the Indiana Department of Environmental Management, Office of Water Management, 100 North Senate Avenue, ~~N1254, Room 1255,~~ Indianapolis, ~~IN~~ **Indiana** 46204. (*Water Pollution Control Board; 327 IAC 8-2-4.2; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1008; errata filed Aug 6, 1991, 3:45 p.m.: 14 IR 2258; filed Aug 24, 1994, 8:15 a.m.: 18 IR 29; errata filed Oct 11, 1994, 2:45 p.m.: 18 IR 531; filed Aug 25, 1997, 8:00 a.m.: 21 IR 40*)

### SECTION 3. 327 IAC 8-2-5.1 IS AMENDED TO READ AS FOLLOWS:

#### **327 IAC 8-2-5.1 Collection of samples for organic chemical testing other than volatile organic compounds and total trihalomethanes**

**Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3; IC 13-18-16**

**Affected: IC 13-18**

Sec. 5.1. To determine compliance with section 5(a) of this rule, collection of samples for organic chemical testing, other than volatile organic compounds and total trihalomethanes, shall be made as follows:

(1) Ground water systems shall take a minimum of one (1) sample at every entry point to the distribution system which is representative of each well after treatment (hereafter called a sampling point). Each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

(2) Surface water systems, including those systems with a combination of surface and ground sources, shall take a minimum of one (1) sample at points in the distribution system that are representative of each source or at each entry point to the distribution system after treatment (hereafter called a sampling point). Each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

(3) If the system draws water from more than one (1) source and the sources are combined before distribution, the system must sample at an entry point to the distribution system during periods of normal operating conditions such as when water representative of all sources is being used.

(4) The monitoring frequency is as follows:

(A) Each community and nontransient noncommunity water system shall take four (4) consecutive quarterly samples for each contaminant listed in section 5(a) of this rule during each compliance period beginning with the initial compliance period.

(B) Systems serving more than three thousand three hundred (3,300) persons which do not detect a contaminant in the initial compliance period may reduce the sampling frequency to a minimum of two (2) quarterly samples in one (1) year during each repeat compliance period.

(C) Systems serving less than or equal to three thousand three hundred (3,300) persons which do not detect a contaminant in the initial compliance period may reduce the sampling frequency to a minimum of one (1) sample during each repeat compliance period.

- (5) Each community and nontransient noncommunity water system may apply to the commissioner for a waiver from the requirement of subdivision (4). A system must reapply for a waiver for each compliance period.
- (6) The commissioner may grant a waiver after evaluating the knowledge of previous use, including transport, storage, or disposal of the contaminant within the watershed or zone of influence of the system. If a determination by the commissioner reveals no previous use of the contaminant within the watershed or zone of influence, a waiver may be granted. If previous use of the contaminant is unknown or it has been used previously, then the following factors shall be used to determine whether a waiver is granted:
- (A) Previous analytical results.
  - (B) The proximity of the system to a potential point or nonpoint source of contamination. (Point sources include spills and leaks of chemicals at or near a water treatment facility or at manufacturing, distribution, or storage facilities, or from hazardous and municipal waste landfills and other waste handling or treatment facilities. Nonpoint sources include the use of pesticides to control insect and weed pests on agricultural areas, forest lands, home and gardens, and other land application uses).
  - (C) The environmental persistence and transport of the pesticide or polychlorinated biphenyls (PCBs).
  - (D) How well the water source is protected against contamination due to such factors as:
    - (i) depth of the well;
    - (ii) the type of soil; and
    - (iii) the integrity of the well casing.
  - (E) Elevated nitrate levels at the water supply source.
  - (F) Use of PCBs in equipment used in the production, storage, or distribution of water, including, but not limited to, PCBs used in pumps or transformers.
- (7) If an organic contaminant listed in section 5(a) of this rule is detected as defined by subdivision (16), in any sample, then the monitoring requirements are as follows:
- (A) Each system must monitor quarterly at each sampling point which resulted in a detection.
  - (B) The commissioner may decrease the quarterly monitoring requirement specified in clause (A) provided it has determined that the system is reliably and consistently below the MCL. In no case shall the commissioner make this determination unless a ground water system takes a minimum of two (2) quarterly samples and a surface water system takes a minimum of four (4) quarterly samples.
  - (C) After the commissioner determines the system is reliably and consistently below the MCL, the commissioner may allow the system to monitor annually. Systems which monitor annually must monitor during the quarter that previously yielded the highest analytical result.
  - (D) Systems which have three (3) consecutive annual samples with no detection of contaminant may apply to the commissioner for a waiver as specified in subdivision (6).
  - (E) If monitoring results in detection of one (1) or more of certain related contaminants (aldicarb, aldicarb sulfoxide, aldicarb sulfone, heptachlor, and heptachlor epoxide), then subsequent monitoring shall include analyses for all related contaminants.
- (8) Systems which violate the requirements of section 5(a) of this rule as determined by subdivision (11) must monitor quarterly. After a minimum of four (4) quarterly samples shows the system is in compliance and the commissioner determines the system is reliably and consistently below the MCL, as specified in subdivision (11), the system shall monitor at the frequency specified in subdivision (7)(C).
- (9) The commissioner may require a confirmation sample for positive or negative results. If a confirmation sample is required by the commissioner, the result must be averaged with the first sampling result and the average used for the compliance determination as specified in subdivision (11). The commissioner has the discretion to delete results of obvious sampling errors from this calculation.
- (10) The commissioner may reduce the total number of samples a system must analyze by allowing the use of compositing. Composite samples from a maximum of five (5) sampling points are allowed, provided that the detection limit of the method used for

analysis is less than one-fifth ( $1/5$ ) of the MCL. Compositing of samples must be done in the laboratory and analyzed within fourteen (14) days of sample collection.

(A) When a composite sample is analyzed, if the concentration in the composite sample detects one (1) or more contaminants listed in section 5(a) of this rule, then a follow-up sample must be analyzed within fourteen (14) days from each sampling point included in the composite and analyzed for that contaminant.

(B) ~~Duplicate samples must be collected from each sampling point when used in the composite samples will be analyzed. If a contaminant is detected, are available, the duplicate system may~~ **If duplicates of the original sample taken from each sampling point are available, the duplicate system may use these instead of resampling. The duplicates must be analyzed and the results reported to the commissioner within fourteen (14) days of collection, after completion of the composite analysis or before the holding time for the initial sample is exceeded, whichever is sooner.**

(C) If the population served by the system is greater than three thousand three hundred (3,300) persons, then compositing may only be permitted by the commissioner at sampling points within a single system. In systems serving less than or equal to three thousand three hundred (3,300) persons, the commissioner may permit compositing among different systems provided the five (5) sample limit is maintained.

(11) Compliance with section 5(a) of this rule shall be determined based on the analytical results obtained at each sampling point in the following manner:

(A) For systems which are conducting monitoring at a frequency greater than annual, compliance is determined by a running annual average of all samples taken at each sampling point. If the annual average of any sampling point is greater than the MCL, then the system is out of compliance. If the initial sample or a subsequent sample would cause the annual average to be exceeded, then the system is out of compliance immediately. Any samples below the detection limit shall be calculated as zero (0) for purposes of determining the annual average.

(B) If monitoring is conducted annually, or less frequently, the system is out of compliance if the level of a contaminant at any sampling point is greater than the MCL. If a confirmation sample is required by the commissioner, the determination of compliance will be based on the average of two (2) samples.

(C) If a public water system has a distribution system separable from other parts of the distribution system with no interconnections, the commissioner may allow the system to give public notice to only that portion of the system which is out of compliance.

(12) If monitoring data collected after January 1, 1990, are generally consistent with the requirements of this section and section 5.2 of this rule, then the commissioner may allow systems to use that data to satisfy the monitoring requirement for the initial compliance period.

(13) The commissioner may increase the required monitoring frequency, where necessary, to detect variations within the system such as fluctuations in concentration due to seasonal use and changes in water source.

(14) The commissioner has the authority to determine compliance or initiate enforcement action based upon analytical results and other information compiled by the commissioner's sanctioned representatives or agencies, or both.

(15) Each public water system shall monitor at the time designated by the commissioner within each compliance period.

(16) Method detection levels for contaminants listed in section 5(a) of this rule are as follows:

<u>Contaminant</u>	<u>Detection Limit (mg/l)</u>
Alachlor	0.0002
Atrazine	0.0001
Benzo[a]pyrene	0.00002
Carbofuran	0.0009
Chlordane	0.0002
Dalapon	0.001
1,2-dibromo-3-chloropropane (DBCP)	0.00002
Di(2-ethylhexyl)adipate	0.0006
Di(2-ethylhexyl)phthalate	0.0006
Dinoseb	0.0002

Diquat	0.0004
2,4-D	0.0001
Endothall	0.009
Endrin	0.00001
Ethylene dibromide (EDB)	0.00001
Glyphosate	0.006
Heptachlor	0.00004
Heptachlor epoxide	0.00002
Hexachlorobenzene	0.0001
Hexachlorocyclopentadiene	0.0001
Lindane	0.00002
Methoxychlor	0.0001
Oxamyl	0.002
Picloram	0.0001
Polychlorinated biphenyls (PCBs) (as decachlorobiphenyl)	0.0001
Pentachlorophenol	0.00004
Simazine	0.00007
Toxaphene	0.001
2,3,7,8-TCDD (dioxin)	0.0000000005
2,4,5-TP (silvex)	0.0002

*(Water Pollution Control Board; 327 IAC 8-2-5.1; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1010; filed Aug 24, 1994, 8:15 a.m.: 18 IR 33; errata filed Oct 11, 1994, 2:45 p.m.: 18 IR 531; filed Aug 25, 1997, 8:00 a.m.: 21 IR 44; filed Apr 21, 1999, 3:22 p.m.: 22 IR 2862; errata filed Apr 28, 1999, 6:36 p.m.: 22 IR 2883)*

#### SECTION 4. 327 IAC 8-2-5.2 IS AMENDED TO READ AS FOLLOWS:

##### **327 IAC 8-2-5.2 Analytical methods for organic chemical testing other than volatile organic compounds and total trihalomethanes**

**Authority:** IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3; IC 13-18-16

**Affected:** IC 13-18

Sec. 5.2. (a) Analysis for the contaminants listed in section 5(a) of this rule shall be conducted using the following EPA methods or their equivalent as approved by EPA established as follows:

- (1) Dioxin, as described in Method 1613\*.
- (2) 2,4-D<sup>3</sup> (as acid, salts, and esters), as described in Method 515.2\*, Method 555\*, ~~or~~ Method 515.1\*, **Method 515.3\*, or Method D5317-93\*. Method 515.2, Rev 1.0\* may be used for compliance monitoring until June 1, 2001.**
- (3) 2,4,5-TP<sup>3</sup> (silvex), as described in Method 515.2\*, Method 555\*, ~~or~~ Method 515.1\*, **Method 515.3\*, or Method D5317-93\*. Method 515.2, Rev 1.0\* may be used for compliance monitoring until June 1, 2001.**
- (4) Alachlor<sup>1</sup>, as described in Method 505\*, Method 507\*, Method 525.2\*, ~~or~~ Method 508.1\*, **or Method 551.1\*. Method 505, Rev 2.0\*, Method 525.2, Rev 1.0\*, and Method 508.1, Rev 1.0\* may be used for compliance monitoring until June 1, 2001.**
- (5) Atrazine<sup>1</sup>, as described in Method 505\*, Method 507\*, Method 525.1\*, ~~or~~ Method 508.1\*, **or Method 551.1\*. Method 505, Rev 2.0, and Method 508.1, Rev 1.0\* may be used for compliance monitoring until June 1, 2001.**
- (6) Benzo(a)pyrene, as described in Method 525.2\*, Method 550\*, or Method 550.1\*. **Method 525.2, Rev 1.0\* may be used for compliance monitoring until June 1, 2001.**
- (7) Carbofuran, as described in Method 531.1\* or Method 6610\*. **Method 531.1, Rev 3.0\* may be used for compliance monitoring until June 1, 2001.**
- (8) Chlordane, as described in Method 505\*, Method 508\*, Method 525.2\*, or Method 508.1\*. **Method 505, Rev 1.0\*, Method 508, Rev 3.0\*, Method 525.2, Rev 1.0\*, and Method 508.1, Rev 1.0\* may be used for compliance monitoring until June 1, 2001.**
- (9) Dalapon, as described in Method 552.1\*, ~~or~~ Method 515.1\*, **Method 552.2\*, or Method 515.3\*.**
- (10) Di(2-ethylhexyl)adipate, as described in Method 506\* or Method 525.2\*.
- (11) Di(2-ethylhexyl)phthalate, as described in Method 506\* or Method 525.2\*.
- (12) ~~1,2-dibromo-3-chloropropane~~ **Dibromochloropropane (DBCP)**, as described in

- Method 504.1\* or ~~Method 551\*~~ **Method 551.1\***. **Method 504.1, Rev 1.0\*** may be used for compliance monitoring until June 1, 2001.
- (13) Dinoseb<sup>3</sup>, as described in Method 515.2\*, Method 555\*, ~~or Method 515.1\*~~, or **Method 515.3\***. **Method 515.2, Rev 1.0\*** may be used for compliance monitoring until June 1, 2001.
- (14) Diquat, as described in ~~Method 549.1\*~~ **Method 549.2\***.
- (15) Endothall, as described in Method 548.1\*.
- (16) Endrin, as described in Method 505\*, Method 508\*, Method 525.2\*, ~~or Method 508.1\*~~, or **Method 551.1\***. **Method 505, Rev 2.0\***, **Method 508, Rev 3.0\***, **Method 525.2, Rev 1.0\***, and **Method 508.1, Rev 1.0\*** may be used for compliance monitoring until June 1, 2001.
- (17) Ethylene dibromide (EDB), as described in Method 504.1\* or ~~Method 551\*~~ **551.1\***. **Method 504.1, Rev 1.0** and **Method 551** may be used for compliance monitoring until June 1, 2001.
- (18) Glyphosate, as described in Method 547\* or Method 6651\*.
- (19) Heptachlor, as described in Method 505\*, Method 508\*, Method 525.2\*, ~~or Method 508.1\*~~, or **Method 551.1\***. **Method 505, Rev 2.0\***, **Method 508, Rev 3.0\***, **Method 525.2, Rev 1.0\***, and **Method 508.1, Rev 1.0\*** may be used for compliance monitoring until June 1, 2001.
- (20) Heptachlor epoxide, as described in Method 505\*, Method 508\*, Method 525.2\*, ~~or Method 508.1\*~~, or **Method 551.1\***. **Method 505, Rev 2.0\***, **Method 508, Rev 3.0\***, **Method 525.2, Rev 1.0\***, and **Method 508.1, Rev 1.0\*** may be used for compliance monitoring until June 1, 2001.
- (21) Hexachlorobenzene, as described in Method 505\*, Method 508\*, Method 525.2\*, ~~or Method 508.1\*~~, or **Method 551.1\***. **Method 505, Rev 2.0\***, **Method 508, Rev 3.0\***, **Method 525.2, Rev 1.0\***, and **Method 508.1, Rev 1.0\*** may be used for compliance monitoring until June 1, 2001.
- (22) Hexachlorocyclopentadiene, as described in Method 505\*, Method 508\*, Method 525.2\*, ~~or Method 508.1\*~~, or **Method 551.1\***. **Method 505, Rev 2.0\***, **Method 508, Rev 3.0\***, **Method 525.2, Rev 1.0\***, and **Method 508.1, Rev 1.0\*** may be used for compliance monitoring until June 1, 2001.
- (23) Lindane, as described in Method 505\*, Method 508\*, Method 525.1\*, ~~or Method 508.1\*~~, or **Method 551.1\***. **Method 505, Rev 2.0\***, **Method 508, Rev 3.0\***, **Method 525.2, Rev 1.0\***, and **Method 508.1, Rev 1.0\*** may be used for compliance monitoring until June 1, 2001.
- (24) Methoxychlor, as described in Method 505\*, Method 508\*, Method 525.1\*, ~~or Method 508.1\*~~, or **Method 551.1\***. **Method 505, Rev 2.0\***, **Method 508, Rev 3.0\***, **Method 525.2, Rev 1.0\***, and **Method 508.1, Rev 1.0\*** may be used for compliance monitoring until June 1, 2001.
- (25) Oxymyl, as described in Method 531.1\* or Method 6610\*. **Method 531.1, Rev 3.0\*** may be used for compliance monitoring until June 1, 2001.
- (26) PCBs<sup>1</sup>:
- (A) as decachlorobiphenyl, as described in Method 508A\*; or
  - (B) as arochlors, as described in Method 505\*, ~~or Method 508\*~~, **Method 525.2\***, or **Method 508.1\***. **Method 505, Rev 2.0\***, **Method 508, Rev 3.0\***, **Method 525.2, Rev 1.0\***, and **Method 508.1, Rev 1.0\*** may be used for compliance monitoring until June 1, 2001.
- (27) Pentachlorophenol, as described in Method 515.2\*, Method 525.2\*, Method 555\*, ~~or Method 515.1\*~~, **Method 515.3\***, or **Method D5317-93\***. **Method 515.2, Rev 1.0\*** and **Method 525.2, Rev 1.0\*** may be used for compliance monitoring until June 1, 2001.
- (28) Picloram<sup>3</sup>, as described in Method 515.2\*, Method 555\*, ~~or Method 515.1\*~~, **Method 515.3\*** or **Method D5317-93\***. **Method 515.2, Rev 1.0\*** may be used for compliance monitoring until June 1, 2001.
- (29) Simazine<sup>1</sup>, as described in Method 505\*, Method 507\*, Method 525.2\*, ~~or Method 508.1\*~~, or **Method 551.1\***. **Method 505, Rev 2.0\***, **Method 508, Rev 3.0\***, **Method 525.2, Rev 1.0\***, and **Method 508.1, Rev 1.0\*** may be used for compliance monitoring until June 1, 2001.
- (30) Toxaphene, as described in Method 505\*, Method 508\*, ~~or Method 525.2\*~~, or **Method 508.1\***. **Method 505, Rev 2.0\***, **Method 508, Rev 3.0\***, **Method 525.2, Rev 1.0\***, and **Method 508.1, Rev 1.0\*** may be used for compliance monitoring until June

1, 2001.

<sup>1</sup>Substitution of the detector specified in Method 505, Method 507, Method 508, or Method 508.1 for the purpose of achieving lower detection limits is allowed as follows. Either an electron capture or nitrogen phosphorus detector may be used provided all regulatory requirements and quality control criteria are met.

<sup>2</sup>PCBs are qualitatively identified as Arochlors and measured for compliance purposes as decachlorobiphenyl. Users of Method 505 may have more difficulty in achieving the required detection limits than users of Method 508.1, Method 525.2, or Method 508.

<sup>3</sup>Accurate determination of the chlorinated esters requires hydrolysis of the sample as described in Method 515.1, Method 515.2, Method 515.3, Method 555, and Method D5317-93.

(b) Analysis for PCBs shall be conducted as follows **using the methods in subsection**

(a):

(1) Each system which monitors for PCBs shall analyze each sample using either Method 505\*, or Method 508\*, ~~(see subsection (a))~~. **Method 508.1\*, or Method 525.2\*. Users of Method 505 may have more difficulty in achieving the required Arochlor detection limits than users of Method 508.1, Method 525.2, or Method 508.**

(2) If PCBs (as one (1) of seven (7) arochlors) are detected, as designated as follows, in any sample analyzed using Method 505\* or Method 508\*, the system shall reanalyze the sample using Method 508A\* to quantitate PCBs (as decachlorobiphenyl):

<u>Arochlor</u>	<u>Detection Limit (mg/l)</u>
1016	0.00008
1221	0.02
1232	0.0005
1242	0.0003
1248	0.0001
1254	0.0001
1260	0.0002

(3) Compliance with the PCB maximum contaminant level shall be determined based upon the quantitative results of analyses using Method 508A\*.

(c) Analysis under this section shall only be conducted by laboratories that have received certification by EPA or the commissioner and have met the following conditions:

(1) ~~To receive certification to conduct analyses for the contaminants in section 5(a) of this rule, the laboratory must analyze performance evaluation samples which include those substances provided by EPA Environmental Monitoring and Support Laboratory or equivalent samples provided by the commissioner.~~ **Successfully analyze performance evaluation (PE) samples provided by the EPA, the commissioner, or by a third party with the approval of the EPA or the commissioner, at least once per year by each method for which the laboratory desires certification.**

(2) **For each contaminant that has been included in the PE sample** achieve quantitative results on the analyses that are within the following acceptance limits:

<u>Contaminant</u>	<u>Acceptance Limits (Percent)</u>
DBCP	±40
EDB	±40
Alachlor	±45
Atrazine	±45
Benzo(a)pyrene	2 standard deviations
Carbofuran	±45
Chlordane	±45
Dalapon	2 standard deviations
Di(2-ethylhexyl)adipate	2 standard deviations
Di(2-ethylhexyl)phthalate	2 standard deviations
Dinoseb	2 standard deviations
Diquat	2 standard deviations
Endothall	2 standard deviations
Endrin	±30
Glyphosate	2 standard deviations



Heptachlor	±45
Heptachlor epoxide	±45
Hexachlorobenzene	2 standard deviations
Hexachlorocyclopentadiene	2 standard deviations
Lindane	±45
Methoxychlor	±45
Oxamyl	2 standard deviations
PCBs (as decachlorobiphenyl)	0-200
Picloram	2 standard deviations
Simazine	2 standard deviations
Toxaphene	±45
Pentachlorophenol	±50
2,3,7,8-TCDD (dioxin)	2 standard deviations
2,4-D	±50
2,4,5-TP (silvex)	±50

\*The methods referenced in this section may be obtained as follows:

(1) Method 508A **and Method 515.1** may be found in "Methods for the Determination of Organic Compounds in Drinking Water", EPA-600/4-88-039, December 1988, revised July 1991, available from NTIS, PB91-231480, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161, (800) 553-6847.

(2) Methods ~~506~~, 547, 550, **and 550.1 and 551** may be found in "~~Method~~ **Methods** for the Determination of Organic Compounds in Drinking Water Supplement I", EPA-600-4-90-020, July 1990, available from NTIS, PB91-146027, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161, (800) 553-6847.

(3) Methods 548.1, 549.1, ~~and 552.1~~, **and 555** may be found in "Methods for the Determination of Organic Compounds in Drinking Water Supplement II", EPA-600/R-92-129, August 1992, available from NTIS, PB92-207703, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161, (800) 553-6847.

(4) Methods **504.1**, 505, **506**, 507, 508, ~~545.1~~, **508.1**, 515.2, **525.2**, 531.1, **551.1**, and ~~555~~ **552.2** may be found in "~~Technical Notes on Drinking Water Methods~~", October 1994, ~~EPA-600/R-94-173~~ **"Methods for the Determination of Organic Compounds in Drinking Water - Supplement III"**, EPA-600/R-95-131, August 1995, available from NTIS, ~~PB95-104766~~, **PB95-261616**, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161, (800) 553-6847.

(5) Method 1613 may be found in "Tetra-through Octa-Chlorinated Dioxins and Furans by Isotope Dilution HRGC/HRMS", EPA 821-B-94-005, October 1994, available from NTIS, PB95-104774, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161, (800) 553-6847.

(6) Method 6651 may be found in "18th Edition of Standard Methods for the Examination of Water and Wastewater" **and "19<sup>th</sup> Edition of Standard Methods for the Examination of Water and Wastewater"**, 1992 **and 1995**, American Public Health Association, available from the American Public Health Association, 1015 Fifteenth Street NW, Washington, D.C. 20005. **Either edition may be used.**

(7) Method 6610 may be found in "Supplement to the 18th Edition of Standard Methods for Water and Wastewater" **or "19<sup>th</sup> Edition of Standard Methods for the Examination of Water and Wastewater"**, 1994 **and 1995**, American Public Health Association, available from the National Public Health Association, 1015 Fifteenth Street NW, Washington, D.C. 20005. **Either publication may be used.**

(8) **Other required analytical test procedures germane to the conduct of these analyses are contained in "Technical Notes of Drinking Water Methods", EPA/600/R-94-173, October 1994, available from NTIS, PB95-104766, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161, (800) 553-6847.**

~~(8)~~ (9) EPA Methods ~~504.1, 508.1, and 525.2~~ **515.3 and 549.2** are available from U.S. EPA ~~EMSL~~ **National Exposure Research Laboratory (NERL)**, 26 West Martin Luther King Drive, Cincinnati, Ohio 45268; the phone number is (513) 569-7586.

(10) Method D5317-93 may be found in the **"Annual Book of ASTM Standards"**, 1996, Vol. 11.02, available from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, Pennsylvania 19428, or in any edition published after 1993.

(11) Methods 505, Rev 2.0, 507, Rev 2.0, 508, Rev 3.0, and 531.1, Rev 3.0 may be

found in "Methods for the Determination of Organic Compounds in Drinking Water", EPA-600/4-88-039, December 1988, revised July 1991, available from NTIS, PB91-231480, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161, (800) 553-6847.

(12) The version of Methods 506 and 551 found in "Methods for the Determination of Organic Compounds in Drinking Water - Supplement I", EPA-600-4-90-020, July 1990, available from NTIS, PB91-146027, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161, (800) 553-6847, may be used for compliance monitoring until June 1, 2001.

(13) Method 515.2, Rev 1.0 may be found in "Methods for the Determination of Organic Compounds in Drinking Water Supplement II", EPA-600/R-92-129, August 1992, available from NTIS, PB92-207703, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161, (800) 553-6847.

(14) Methods 504.1, Rev 1.0, 508.1, Rev 1.0, and Method 525.2, Rev 1.0 are available from U.S. EPA National Exposure Research Laboratory (NERL), 26 West Martin Luther King Drive, Cincinnati, Ohio 45268, (513) 569-7586.

These methods are available for copying at the Indiana Department of Environmental Management, Office of Water Management, 100 North Senate Avenue, ~~Room 1254~~, **Room 1255**, Indianapolis, Indiana 46204. (*Water Pollution Control Board; 327 IAC 8-2-5.2; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1011; errata filed Aug 6, 1991, 3:45 p.m.: 14 IR 2258; filed Aug 24, 1994, 8:15 a.m.: 18 IR 35; errata filed Oct 11, 1994, 2:45 p.m.: 18 IR 531; filed Aug 25, 1997, 8:00 a.m.: 21 IR 46; errata filed Dec 10, 1997, 3:45 p.m.: 21 IR 1347*)

SECTION 5. 327 IAC 8-2-5.3 IS AMENDED TO READ AS FOLLOWS:

**327 IAC 8-2-5.3 Collection of samples for total trihalomethanes testing; community water systems**

**Authority:** IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3; IC 13-18-16

**Affected:** IC 13-11-2; IC 13-14-8; IC 13-18-1; IC 13-18-2

Sec. 5.3. (a) To determine compliance with section 5 of this rule, each community water system which serves ten thousand (10,000) or more individuals and which adds a disinfectant (oxidant) to the water in any part of the drinking water treatment process shall collect and analyze samples for total trihalomethanes (TTHM) in accordance with this section. The minimum number of samples required to be taken by the system shall be based on the number of treatment plants used by the system, except that multiple wells drawing raw water from a single aquifer may, with the commissioner's approval, be considered one (1) treatment plant for determining the minimum number of samples. All samples taken within an established frequency shall be collected within a twenty-four (24) hour period.

(b) The requirements of subsection (a) apply as follows:

(1) Community water systems which utilize surface water sources in whole or in part, and community water systems which utilize only ground water sources and which have not been determined by the commissioner to qualify for the monitoring requirements of subsection (c) shall analyze for TTHM at quarterly intervals on at least four (4) water samples for each treatment plant used by the system. At least twenty-five percent (25%) of the samples shall be taken at locations within the distribution system reflecting the maximum residence time of the water in the system. The remaining seventy-five percent (75%) shall be taken at representative locations in the distribution system, taking into account number of persons served, different sources of water, and different treatment methods employed. The results of all analyses per quarter shall be arithmetically averaged and reported to the commissioner within thirty (30) days of the system's receipt of such results. All samples collected shall be used in the computation of the average, unless the analytical results are invalidated for technical reasons. Sampling and analyses shall be conducted in accordance with the methods listed in subsection (e).

(2) Upon the written request of a community water system, the monitoring frequency required by subdivision (1) may be reduced by the commissioner to a minimum of one (1) sample analyzed for TTHM per quarter taken at a point in the distribution system reflecting the maximum residence time of the water in the system. Upon a written determination by the commissioner that the data from at least one (1) year of monitoring

in accordance with subdivision (1) and local conditions demonstrate that TTHM concentrations will be consistently below the MCL.

(3) If, at any time during which the reduced monitoring frequency prescribed under this section applies, the results from any analysis exceed ten-hundredths (0.10) milligram per liter of TTHM and such results are confirmed by at least one (1) check sample taken promptly after such results are received, or if the system makes any significant change to its source of water or treatment program, the system shall immediately begin monitoring in accordance with the requirements of subdivision (1) which monitoring shall continue for at least one (1) year before the frequency may be reduced again. At the discretion of the commissioner, a system's monitoring frequency shall be increased above the minimum in those cases where it is necessary to detect variations of TTHM levels within the distribution system.

(c) Monitoring frequency required by this section may only be reduced as follows:

(1) Upon written request to the commissioner, a community water system utilizing only ground water sources may seek to have the monitoring frequency required by subsection (a) reduced to a minimum of one (1) sample for maximum TTHM potential per year for each treatment plant used by the system taken at a point in the distribution system reflecting maximum residence time of the water in the system. The system shall submit, to the commissioner, the results of at least one (1) sample analyzed for maximum TTHM potential using the procedure specified in subsection (g). A sample must be analyzed from each treatment plant used by the system and be taken at a point in the distribution system reflecting the maximum residence time of the water in the system. The system's monitoring frequency may only be reduced upon a written determination by the commissioner that, based upon the data submitted by the system, the system has a maximum TTHM potential of less than ten-hundredths (0.10) milligram per liter and that, based upon an assessment of the local condition of the system, the system is not likely to approach or exceed the MCL for total TTHMs. The results of all analyses shall be reported to the commissioner within thirty (30) days of the system's receipt of such results. All samples collected shall be used for determining whether the system must comply with the monitoring requirements of subsection (a) unless the analytical results are invalidated for technical reasons. Sampling and analyses shall be conducted in accordance with the methods listed in subsection (e).

(2) If, at any time during which the reduced monitoring frequency prescribed under subdivision (1) applies, the results from any analysis taken by the system for maximum TTHM potential are equal to or greater than ten-hundredths (0.10) milligram per liter, and such results are confirmed by at least one (1) check sample taken promptly after such results are received, the system shall immediately begin monitoring in accordance with the requirements of subsection (b) and such monitoring shall continue for at least one (1) year before the frequency may be reduced again. In the event of any significant change to the system's source of water or treatment program, the system shall immediately analyze an additional sample for maximum TTHM potential taken at a point in the distribution system reflecting maximum residence time of the water in the system for the purpose of determining whether the system must comply with monitoring requirements of subsection (b). At the discretion of the commissioner, monitoring frequencies may and should be increased above the minimum in those cases where this is necessary to detect variation of TTHM levels within the distribution system.

(d) Compliance with section 5 of this rule for TTHM shall be determined based on a running annual average of quarterly samples collected by the system as prescribed in subsection (b)(1) or (b)(2). If the average of samples covering any four (4) consecutive quarterly periods exceeds the MCL, the supplier of water shall report to the commissioner under section 13 of this rule and notify the public under section 15 of this rule. Monitoring after public notification shall be at a frequency designated by the commissioner and shall continue until a monitoring schedule as a condition to a variance, exemption, or enforcement action shall become effective.

(e) Samples for TTHM shall be dechlorinated upon collection to prevent further production of trihalomethanes according to the procedures described in the methods, except acidification is not required if only TTHMs or THMs are to be determined. Samples for maximum TTHM potential should not be dechlorinated and should be held for seven (7) days at twenty-five (25) degrees Celsius (25°C) or above prior to analysis. Analyses made under this

section shall be conducted by one (1) of the following U.S. EPA approved methods:

(1) Method 502.2\*.

(2) Method 524.2\*.

(3) Method ~~551\*~~, **551.1\***.

**(4) Method 551\*. This method is available for compliance monitoring only until June 1, 2001.**

**(5) Method 502.2, Rev 2.0. This method is available for compliance monitoring only until June 1, 2001.**

(f) Before a community water system makes any significant modifications to its existing treatment process for the purpose of achieving compliance with the MCL established in section 5(a) of this rule, such system must submit and obtain the commissioner's approval of a detailed plan setting forth its proposed modification and those safeguards that it will implement to ensure that the bacteriological quality of the drinking water served by such system will not be adversely affected by such modification. Each system shall comply with the provisions set forth in the approved plan. At a minimum, a plan approved by the commissioner shall require the system modifying its disinfection practice to do the following:

(1) Evaluate the water system for sanitary defects and evaluate the source water for biological quality.

(2) Evaluate its existing treatment practices and consider improvements that will minimize disinfectant demand and optimize finished water quality throughout the distribution system.

(3) Provide baseline water quality survey data of the distribution system. Such data should include the results from monitoring for coliform and fecal coliform bacterial, fecal streptococci, standard plate counts at thirty-five (**35**) degrees Celsius (~~35°C~~) and twenty (**20**) degrees Celsius, (~~20°C~~), phosphate, ammonia nitrogen, and total organic carbon. Virus studies should be required where source waters are heavily contaminated with sewage effluent.

(4) Conduct additional monitoring to assure continued maintenance of optimal biological quality in finished water, for example, when chloramines are introduced as disinfectants or when prechlorination is being discontinued. Additional monitoring may also be required by the commissioner for chlorate, chlorite, and chlorine dioxide when chlorine dioxide is used. Standard plate count analysis may also be required by the commissioner as appropriate before and after any modifications.

(5) Consider inclusion in the plan provisions to maintain an active disinfectant residual throughout the distribution system at all times during and after modification.

(g) The water sample for determination of maximum trihalomethane potential is taken from a point in the distribution system that reflects maximum residence time. Procedures for sample collection and handling are given in the methods. No reducing agent is added to quench the chemical reaction producing THMs at the time of sample collection. The intent is to permit the levels of THM precursors to be depleted and the concentration of THMs to be maximized for the supply to be tested. Four (4) experimental parameters affecting maximum THM production are pH, temperature, reaction time, and the presence of a disinfectant residual. These parameters are dealt with as follows:

(1) Measure the disinfectant residual at the selected sampling point. Proceed only if a measurable disinfectant residual is present.

(2) Collect triplicate forty (40) milliliter water samples at the pH prevailing at the time of sampling and prepare a method blank according to the methods.

(3) Seal and store these samples together for seven (7) days at twenty-five (**25**) degrees Celsius (~~25°C~~) or above.

(4) After this time period, open one (1) of the sample containers and check for disinfectant residual. Absence of a disinfectant residual invalidates the sample for further analysis. Once a disinfectant residual has been demonstrated, open another of the sealed samples and determine total THM concentration using a method specified in subsection (e).

\*The methods referenced in this section may be obtained as follows:

(1) Method 502.2 may be found in "Methods for the Determination of Organic Compounds in Drinking Water, EPA-600/4-88-039, ~~December 1988, revised July 1991~~ Supplement III", EPA/600/R-95-131, August 1995, available from NTIS, PB91-

~~231480, PB95-261616~~, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161, (800) 553-6847.

(2) Method ~~551~~ **551.1** may be found in "Methods for the Determination of Organic Compounds in Drinking Water Supplement I", ~~EPA-600/4-90-020, July 1990, III~~, **EPA/600/R-95-131, August 1995**, available from NTIS, ~~PB91-146027, PB95-261616~~, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161, (800) 553-6847.

(3) Method 524.2 may be found in "Methods for the Determination of Organic Compounds in Drinking Water Supplement II", EPA-600/R-92-129, August 1992, available from NTIS, PB92-207703, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161, (800) 553-6847.

(4) Method **551** may be found in "Methods for the Determination of Organic Compounds in Drinking Water Supplement I", EPA-600-4-90-020, July 1990, available from NTIS, PB91-146027, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161, (800) 553-6847.

(5) Method 502.2, Rev 2.0 may be found in "Methods for the Determination of Organic Compounds in Drinking Water", EPA-600/4-88-039, December 1988, revised July 1991, available from NTIS, PB91-231480, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161, (800) 553-6847.

These methods are available for copying at the Indiana Department of Environmental Management, Office of Water Management, 100 North Senate Avenue, ~~N1254, Room 1255~~, Indianapolis, ~~IN~~ **Indiana** 46204. (*Water Pollution Control Board; 327 IAC 8-2-5.3; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1011; filed Aug 24, 1994, 8:15 a.m.: 18 IR 37; errata filed Oct 11, 1994, 2:45 p.m.: 18 IR 531; filed Aug 25, 1997, 8:00 a.m.: 21 IR 49; errata filed Dec 10, 1997, 3:45 p.m.: 21 IR 1348*)

#### SECTION 6. 327 IAC 8-2-5.5 IS AMENDED TO READ AS FOLLOWS:

#### **327 IAC 8-2-5.5 Collection of samples for volatile organic compound testing other than total trihalomethanes; community and nontransient noncommunity water systems**

**Authority:** IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3; IC 13-18-16

**Affected:** IC 13-18

Sec. 5.5. (a) Community water systems and nontransient noncommunity water systems shall collect samples for volatile organic compound testing in order to determine compliance with section 5.4 of this rule, beginning with the initial compliance period, as follows:

(1) Ground water systems shall take a minimum of one (1) sample at every entry point to the distribution system which is representative of each well after treatment (hereafter called a sampling point). Each sample must be taken at the same sampling point, unless conditions make another sampling point more representative of each source or treatment plant, or within the distribution system.

(2) Surface water systems (or combined surface/ground) shall take a minimum of one (1) sample at points in the distribution system that are representative of each source or at each entry point to the distribution system after treatment (hereafter called a sampling point). Each sample must be taken at the same sampling point, unless conditions make another sampling point more representative of each source or treatment plant, or within the distribution system.

(3) If the system draws water from more than one (1) source and sources are combined before distribution, the system must sample at an entry point to the distribution system during periods of normal operating conditions such as when water representative of all sources is being used.

(4) Each community and nontransient noncommunity water system shall take four (4) consecutive quarterly samples for each contaminant listed in section 5.4 of this rule, except vinyl chloride, during each compliance period, beginning in the initial compliance period.

(5) If the initial monitoring for contaminants listed in section 5.4 of this rule, as allowed by subsection (b), has been completed by December 31, 1992, and the system did not detect any contaminant listed in section 5.4 of this rule, then each ground and surface water system shall take one (1) sample annually beginning with the initial compliance period.

(6) After a minimum of three (3) years of annual sampling, the commissioner may allow ground water systems with no previous detection of any contaminant listed in section 5.4 of this rule to take one (1) sample during each compliance period.

(7) Each community and nontransient noncommunity ground water system which does not detect a contaminant listed in section 5.4 of this rule may apply to the commissioner for a waiver from the requirements of subdivisions (5) and (6) after completing the initial monitoring. As used in this section, "detection" means greater than or equal to five ten-thousandths (0.0005) milligram per liter. A waiver shall be effective for no more than six (6) years (two (2) compliance periods). The commissioner may also issue waivers to small systems for the initial round of monitoring for 1,2,4-trichlorobenzene.

(8) The commissioner may grant a waiver after evaluating the following factors:

(A) Knowledge of previous use (including transport, storage, or disposal) of the contaminant within the watershed or zone of influence of the system. If a determination by the commissioner reveals no previous use of the contaminant within the watershed or zone of influence, a waiver may be granted.

(B) If previous use of the contaminant is unknown or if the contaminant has been used previously, then the following factors shall be used to determine whether a waiver is granted:

(i) Previous analytical results.

(ii) The proximity of the system to a potential point or nonpoint source of contamination. Point sources include spills and leaks of chemicals at or near a water treatment facility or at manufacturing, distribution, or storage facilities, or from hazardous and municipal waste landfills and other waste handling or treatment facilities.

(iii) The environmental persistence and transport of the contaminants.

(iv) The number of persons served by the public water system, and the proximity of a smaller system to a larger system.

(v) How well the water source is protected against contamination, such as whether it is a surface or ground water system. Ground water systems must consider factors such as the depth of the well, the type of soil, and wellhead protection. Surface water systems must consider watershed protection.

(9) As a condition of the waiver, a ground water system must take one (1) sample at each sampling point during the time the waiver is effective, for example, one (1) sample during two (2) compliance periods or six (6) years, and update its vulnerability assessment considering the factors listed in subdivision (8). Based on this vulnerability assessment, the commissioner must reconfirm that the system is nonvulnerable. If the commissioner does not make this reconfirmation within three (3) years of the initial determination, then the waiver is invalidated and the system is required to sample annually as specified in subdivision (5).

(10) Each community and nontransient noncommunity surface water system which does not detect a contaminant listed in section 5.4 of this rule may apply to the commissioner for a waiver from the requirements of subdivision (5) after completing the initial monitoring. Composite samples from a maximum of five (5) sampling points are allowed provided that the detection limit of the method used for analysis is less than one-fifth (1/5) of the MCL. Systems meeting this criterion must be determined by the commissioner to be nonvulnerable based on a vulnerability assessment during each compliance period. Each system receiving a waiver shall sample at the frequency specified by the commissioner (if any).

(11) If a contaminant listed in section 5.4 of this rule, except vinyl chloride, is detected at a level exceeding five ten-thousandths (0.0005) milligram per liter in any sample, then the monitoring requirements will be as follows:

(A) The system must monitor quarterly at each sampling point which resulted in a detection.

(B) The commissioner may decrease the quarterly monitoring requirement specified in clause (A) provided it has determined that the system is reliably and consistently below the MCL. In no case shall the commissioner make this determination unless a ground water system takes a minimum of two (2) quarterly samples and a surface water system takes a minimum of four (4) quarterly samples.

(C) If the commissioner determines that the system is reliably and consistently

below the MCL, the commissioner may allow the system to monitor annually. Systems which monitor annually must monitor during the quarter or quarters which previously yielded the highest analytical result.

(D) Systems which have three (3) consecutive annual samples with no detection of a contaminant may apply to the commissioner for a waiver as specified in subdivision (7).

(E) Ground systems which have detected one (1) or more two-carbon organic compounds:

- (i) trichloroethylene;
- (ii) tetrachloroethylene;
- (iii) 1,2-dichloroethane;
- (iv) 1,1,1-trichloroethane;
- (v) cis-1,2-dichloroethylene;
- (vi) trans-1,2-dichloroethylene; or
- (vii) 1,1-dichloroethylene;

shall monitor quarterly for vinyl chloride. A vinyl chloride sample shall be taken at each sampling point at which one (1) or more of the two-carbon organic compounds was detected. If the results of the first analysis do not detect vinyl chloride, the commissioner may reduce the quarterly monitoring frequency of vinyl chloride monitoring to one (1) sample during each compliance period. Surface water systems are required to monitor for vinyl chloride as specified by the commissioner.

(12) Systems which violate the requirements of section 5.4 of this rule, as determined by subdivision (15), must monitor quarterly. After a minimum of four (4) consecutive quarterly samples which show the system is in compliance as specified in subdivision (15) if the commissioner determines that the system is reliably and consistently below the MCL, the system may monitor at the frequency and times specified in subdivision (11)(C).

(13) The commissioner may require a confirmation sample for positive or negative results. If a confirmation sample is required by the commissioner, the result must be averaged with the first sampling result and the average is used for the compliance determination as specified by subdivision (15). The commissioner has the discretion to delete results of obvious sampling errors from this calculation.

(14) The commissioner may reduce the total number of samples a system must analyze by allowing the use of compositing. Composite samples from a maximum of five (5) sampling points are allowed, provided that the detection limit of the method used for analysis is less than one-fifth (1/5) of the MCL. Compositing of samples must be done in the laboratory and analyzed within fourteen (14) days of sample collection **as follows:**

(A) If the concentration in the composite sample is greater than or equal to five ten-thousandths (0.0005) milligram per liter for any contaminant listed in section 5.4 of this rule, then a follow-up sample must be analyzed within fourteen (14) days from each sampling point included in the composite, and be analyzed for that contaminant.

(B) If a ~~duplicate~~ **duplicates** of the original sample taken from each sampling point used in the composite is ~~sample~~ **are** available, the system may use the ~~duplicate~~ **duplicates** instead of resampling. The ~~duplicate~~ **duplicates** must be analyzed and the results reported to the commissioner within fourteen (14) days of collection. **after completing analysis of the composite sample, provided the holding time of the sample is not exceeded.**

(C) Compositing may only be permitted by the commissioner at sampling points within a single system if the population served by the system is greater than three thousand three hundred (3,300) persons. In systems serving less than or equal to three thousand three hundred (3,300) persons, the commissioner may permit compositing among different systems provided the five (5) sample limit is maintained.

(D) Compositing of samples prior to gas chromatography (GC) analysis shall be as follows:

- (i) Add five (5) milliliters or equal larger amounts of each sample (up to five (5) samples are allowed) to a twenty-five (25) milliliter glass syringe. Special precautions must be made to maintain zero (0) headspace in the syringe.

- (ii) The samples must be cooled at four degrees (4) Celsius (~~4°C~~) during this step to minimize volatilization losses.
- (iii) Mix well and draw out a five (5) milliliter aliquot for analysis.
- (iv) Follow sample introduction, purging, and desorption steps described in the method.
- (v) If less than five (5) samples are used for compositing, a proportionately smaller syringe may be used.
- (E) Compositing of samples prior to gas chromatography/mass spectrometry (GS/MS) analysis shall be as follows:
  - (i) Inject five (5) milliliters or larger amounts of each aqueous solution (up to five (5) samples are allowed) into a twenty-five (25) milliliter purging device using the sample introduction technique described in the method.
  - (ii) The total volume of the sample in the purging device must be twenty-five (25) milliliters.
  - (iii) Purge and desorb as described in the method.
- (15) Compliance with section 5.4 of this rule shall be determined based on the analytical results obtained at each sampling point using the following criteria:
  - (A) For systems which are conducting monitoring at a frequency greater than annually, compliance is determined by a running annual average of all samples taken at each sampling point. If the annual average of any sampling point is greater than the MCL, then the system is out of compliance. If the initial sample or a subsequent sample would cause the annual average to be exceeded, then the system is out of compliance immediately.
  - (B) If monitoring is conducted annually, or less frequently, the system is out of compliance if the level of a contaminant at any sampling point is greater than the MCL. If a confirmation sample is required by the commissioner, the determination of compliance will be based on the average of two (2) samples.
  - (C) If a public water system has a distribution system separable from other parts of the distribution system with no interconnections, the commissioner may allow the system to give public notice to only that area served by that portion of the system which is out of compliance.

(b) The commissioner may allow the use of monitoring data collected after January 1, 1988, for purposes of initial monitoring compliance. If the data are generally consistent with the other requirements of this section, the commissioner may use these data (a single sample rather than four (4) quarterly samples) to satisfy the initial monitoring requirement of subsection (a)(4). Systems which use grandfathered samples and do not detect any contaminant listed in section 5.4 of this rule, except vinyl chloride, shall begin monitoring annually in accordance with subsection (a)(5), beginning with the initial compliance period.

(c) The commissioner may increase required monitoring where necessary to detect variations within the system.

~~(d) Each certified laboratory must determine the method detection limit, as defined in Appendix B of 40 CFR 136 (July 1, 1991), at which it is capable of detecting volatile organic compounds. The acceptable method detection limit is five ten thousandths (0.0005) milligram per liter. This concentration is the detection concentration for purposes of this section. To receive certification to conduct analyses for the contaminants in section 5.4 of this rule, excluding vinyl chloride, each certified laboratory must meet the following requirements:~~

- (1) Successfully analyze performance evaluation (PE) samples provided by EPA, the commissioner, or by a third party with the approval of EPA or the commissioner, at least once a year by each method for which the laboratory desires certification.**
- (2) Achieve the quantitative acceptance limits under subdivisions (3) and (4) for at least eighty percent (80%) of the regulated organic chemicals in section 5.4 of this rule, excluding vinyl chloride.**
- (3) Achieve quantitative results on the analyses performed under subdivision (1) that are within plus or minus twenty percent ( $\pm 20\%$ ) of the actual amount of the substances in the PE sample when the actual amount is greater than or equal to ten-thousandths milligrams per liter ( 0.010 mg/l).**
- (4) Achieve quantitative results on the analyses performed under subdivision (1) that are within plus or minus forty percent ( $\pm 40\%$ ) of the actual amount of the**



substances in the PE sample when the actual amount is less than ten-thousandths milligrams per liter (< 0.010 mg/l).

(5) Achieve a method detection limit of five ten-thousandth milligrams per liter (0.0005 mg/l), according to the procedures in 40 CFR 136, Appendix B\*.

(e) To receive certification to conduct analyses for vinyl chloride, the laboratory must meet the following requirements:

(1) Successfully analyze PE samples provided by EPA, the commissioner, or by a third party with the approval of EPA or the commissioner, at least once a year by each method for which the laboratory desires certification.

(2) Achieve quantitative results on the analyses performed under subdivision (1) that are within plus or minus forty percent ( $\pm 40\%$ ) of the actual amount of vinyl chloride in the PE sample.

(3) Achieve a method detection limit of five ten-thousandth milligrams per liter (0.0005 mg/l), according to the procedures in 40 CFR 136, Appendix B\*.

(4) Obtain certification for the contaminants listed in section 5.4 of this rule.

(f) Each public water system shall monitor at the time designated by the commissioner within each compliance period.

(g) The commissioner may increase required monitoring where necessary to detect variations within the system.

(h) The commissioner has the authority to determine compliance or initiate enforcement based upon analytical results or other information.

**\*40 CFR 136, Appendix B\* is incorporated by reference. Copies of this regulation may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402, or from the Indiana Department of Environmental Management, Office of Water Management, Indiana Government Center-North, 100 North Senate Avenue, Room N1255, Indianapolis, Indiana 46206. (Water Pollution Control Board; 327 IAC 8-2-5.5; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1014; errata filed Jan 9, 1991, 2:30 p.m.: 14 IR 1070; errata filed Aug 6, 1991, 3:45 p.m.: 14 IR 2258; filed Aug 24, 1994, 8:15 a.m.: 18 IR 39; errata filed Oct 11, 1994, 2:45 p.m.: 18 IR 531; filed Oct 24, 1997, 4:30 p.m.: 21 IR 936)**

SECTION 7. 327 IAC 8-2-5.6 IS AMENDED TO READ AS FOLLOWS:

**327 IAC 8-2-5.6 Analytical methods for volatile organic compounds**

**Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3; IC 13-18-16**

**Affected: IC 13-18**

Sec. 5.6. (a) Analysis for the contaminants listed in section 5.5 of this rule shall be conducted using the following U.S. EPA methods or their equivalent as approved by EPA:

(1) Benzene, as described in Method 502.2\* or Method 524.2\*. **Method 502.2, Rev 2.0\* and Method 524.2, Rev 4.0\* may be used for compliance monitoring until June 1, 2001.**

(2) Carbon tetrachloride, as described in Method 502.2\*, Method 524.2\*, or ~~Method 551\*~~ **Method 551.1\*. Method 502.2, Rev 2.0\*, Method 524.2, Rev 4.0\*, and Method 551\* may be used for compliance monitoring until June 1, 2001.**

(3) Chlorobenzene, as described in Method 502.2\* or Method 524.2\*. **Method 502.2, Rev 2.0\* and Method 524.2, Rev 4.0\* may be used for compliance monitoring until June 1, 2001.**

(4) 1,2-dichlorobenzene, as described in Method 502.2\* or Method 524.2\*. **Method 502.2, Rev 2.0\* and Method 524.2, Rev 4.0\* may be used for compliance monitoring until June 1, 2001.**

(5) 1,4-dichlorobenzene, as described in Method 502.2\* or Method 524.2\*. **Method 502.2, Rev 2.0\* and Method 524.2, Rev 4.0\* may be used for compliance monitoring until June 1, 2001.**

(6) 1,2-dichloroethane, as described in Method 502.2\* or Method 524.2\*. **Method 502.2, Rev 2.0\* and Method 524.2, Rev 4.0\* may be used for compliance monitoring until June 1, 2001.**

(7) cis-dichloroethylene, as described in Method 502.2\* or Method 524.2\*. **Method**

**502.2, Rev 2.0\* and Method 524.2, Rev 4.0\* may be used for compliance monitoring until June 1, 2001.**

(8) trans-dichloroethylene, as described in Method 502.2\* or Method 524.2\*. **Method 502.2, Rev 2.0\* and Method 524.2, Rev 4.0\* may be used for compliance monitoring until June 1, 2001.**

(9) Dichloromethane, as described in Method 502.2\* or Method 524.2\*. **Method 502.2, Rev 2.0\* and Method 524.2, Rev 4.0\* may be used for compliance monitoring until June 1, 2001.**

(10) 1,2-dichloropropane, as described in Method 502.2\* or Method 524.2\*. **Method 502.2, Rev 2.0\* and Method 524.2, Rev 4.0\* may be used for compliance monitoring until June 1, 2001.**

(11) Ethylbenzene, as described in Method 502.2\* or Method 524.2\*. **Method 502.2, Rev 2.0\* and Method 524.2, Rev 4.0\* may be used for compliance monitoring until June 1, 2001.**

(12) Styrene, as described in Method 502.2\* or Method 524.2\*. **Method 502.2, Rev 2.0\* and Method 524.2, Rev 4.0\* may be used for compliance monitoring until June 1, 2001.**

(13) Tetrachloroethylene, as described in Method 502.2\*, Method 524.2\*, or Method 551\*. **Method 551.1\*. Method 502.2, Rev 2.0\*, Method 524.2, Rev 4.0\*, and Method 551\* may be used for compliance monitoring until June 1, 2001.**

(14) 1,1,1-trichloroethane, as described in Method 502.2\*, Method 524.2\*, or Method 551\*. **Method 551.1\*. Method 502.2, Rev 2.0\*, Method 524.2, Rev 4.0\*, and Method 551\* may be used for compliance monitoring until June 1, 2001.**

(15) Trichloroethylene, as described in Method 502.2\*, Method 524.2\*, or Method 551\*. **Method 551.1\*. Method 502.2, Rev 2.0\*, Method 524.2, Rev 4.0\*, and Method 551\* may be used for compliance monitoring until June 1, 2001.**

(16) Toluene, as described in Method 502.2\* or Method 524.2\*. **Method 502.2, Rev 2.0\* and Method 524.2, Rev 4.0\* may be used for compliance monitoring until June 1, 2001.**

(17) 1,2,4-trichlorobenzene, as described in Method 502.2\* or Method 524.2\*. **Method 502.2, Rev 2.0\* and Method 524.2, Rev 4.0\* may be used for compliance monitoring until June 1, 2001.**

(18) 1,1-dichloroethylene, as described in Method 502.2\* or Method 524.2\*. **Method 502.2, Rev 2.0\* and Method 524.2, Rev 4.0\* may be used for compliance monitoring until June 1, 2001.**

(19) 1,1,2-trichloroethane, as described in Method 502.2\*, or Method 524.2\*, or Method 551\*. **Method 551.1\*. Method 502.2, Rev 2.0\* and Method 524.2, Rev 4.0\* may be used for compliance monitoring until June 1, 2001.**

(20) Vinyl chloride, as described in Method 502.2\* or Method 524.2\*. **Method 502.2, Rev 2.0\* and Method 524.2, Rev 4.0\* may be used for compliance monitoring until June 1, 2001.**

(21) Xylenes (total), as described in Method 502.2\* or Method 524.2\*. **Method 502.2, Rev 2.0\* and Method 524.2, Rev 4.0\* may be used for compliance monitoring until June 1, 2001.**

(b) Analysis under this section shall only be conducted by laboratories that are certified by EPA or the commissioner, according to the following conditions (laboratories may conduct sample analysis under provisional certification until January 1, 1996):

~~(1) To receive certification to conduct analyses for the contaminants in section 5.4 of this rule, except vinyl chloride, the laboratory must complete the following:~~

~~(A) Analyze performance evaluation samples which include these substances provided by EPA Environmental Monitoring Systems Laboratory or equivalent samples provided by the commissioner.~~

~~(B) Achieve quantitative acceptance limits under clauses (C) and (D) for at least eighty percent (80%) of the regulated volatile organic chemicals listed in section 5.4 of this rule, except vinyl chloride.~~

~~(C) Achieve quantitative results on the analyses performed under clause (A) that are within plus or minus twenty percent (20%) of the actual amount of the substances in the performance evaluation sample when the actual amount is greater than or equal to ten thousandths (0.010) milligram per liter.~~

~~(D) Achieve quantitative results on the analyses performed under clause (A) that~~

are within plus or minus forty percent (40%) of the actual amount of the substances in the performance evaluation sample when the actual amount is less than ten thousandths (0.010) milligram per liter.

(E) Achieve a method detection limit of five ten thousandths (0.0005) milligram per liter, according to the procedures in Appendix B of 40 CFR 136 (July 1, 1991).

(2) To receive certification for vinyl chloride, the laboratory must complete the following:

(A) Analyze performance evaluation samples provided by EPA Environmental Monitoring Systems Laboratory or equivalent samples provided by the commissioner.

(B) Achieve quantitative results on the analyses performed under clause (A) that are within plus or minus forty percent (40%) of the actual amount of vinyl chloride in the performance evaluation sample.

(C) Achieve a method detection limit of five ten thousandths (0.0005) milligram per liter, according to the procedures in Appendix B of 40 CFR 136.

(D) Obtain certification for all contaminants listed in section 5.4 of this rule.

(c) The following procedure shall be followed to composite samples prior to analysis:

(1) Compositing of samples prior to gas chromatography (GC) analysis shall be as follows:

(A) Add five (5) milliliters or equal larger amounts of each sample (up to five (5) samples are allowed) to a twenty-five (25) milliliter glass syringe. Special precautions must be made to maintain zero (0) headspace in the syringe.

(B) The samples must be cooled at four (4) degrees Celsius (4°C) during this step to minimize volatilization losses.

(C) Mix well and draw out a five (5) milliliter aliquot for analysis.

(D) Follow sample introduction, purging, and desorption steps described in the method.

(E) If less than five (5) samples are used for compositing, a proportionately smaller syringe may be used.

(2) Compositing of samples prior to gas chromatography/mass spectrometry (GC/MS) analysis shall be as follows:

(A) Inject five (5) milliliters or equal larger amounts of each aqueous sample (up to five (5) samples are allowed) into a twenty-five (25) milliliter purging device using the sample introduction technique described in the method.

(B) The total volume of the sample in the purging device must be twenty-five (25) milliliters.

(C) Purge and desorb as described in the method.

\*Methods referenced in this section may be obtained as follows:

(1) Method 502.2, **Rev 2.0** may be found in "Methods for the Determination of Organic Compounds in Drinking Water", October 1994, EPA-600/4-88-039, available from NTIS, PB95-104766, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161, (800) 553-6847.

(2) Method 524.2, **Rev 2.0** may be found in "Methods for the Determination of Organic Compounds in Drinking Water Supplement II", August 1992, EPA-600/R-92-129, available from NTIS, PB92-207703, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161, (800) 553-6847.

(3) Method 551 may be found in "Methods for the Determination of Organic Compounds in Drinking Water Supplement I", July 1990, EPA-600-4-90-020, available from NTIS, PB91-146027, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161, (800) 553-6847.

**(4) Methods 502.2, 524.2, and 551.1 may be found in "Methods for the Determination of Organic Compounds in Drinking Water - Supplement III", EPA/600/R-95-131, August 1995, available from NTIS, PB95-261616, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161, (800) 553-6847.**

These methods are available for copying at the Indiana Department of Environmental Management, 100 North Senate Avenue, Room 1254, **1255**, Indianapolis, Indiana 46204. (*Water Pollution Control Board; 327 IAC 8-2-5.6; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1015; errata filed Aug 6, 1991, 3:45 p.m.: 14 IR 2258; filed Aug 24, 1994, 8:15 a.m.: 18 IR 44; errata filed*

Oct 11, 1994, 2:45 p.m.: 18 IR 531; filed Oct 24, 1997, 4:30 p.m.: 21 IR 939)

SECTION 8. 327 IAC 8-2-8 IS AMENDED TO READ AS FOLLOWS:

**327 IAC 8-2-8 Collection of samples for total coliform bacteria testing**

**Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3; IC 13-18-16**

**Affected: IC 13-18**

Sec. 8. (a) Public water systems must collect total coliform samples at sites which are representative of water throughout the distribution system according to a written sample siting plan approved by the commissioner.

(b) The monitoring frequency for total coliforms for community water systems is based on the population served by the system and shall be as follows unless the commissioner determines that more frequent sampling is appropriate:

**TOTAL COLIFORM MONITORING FREQUENCY  
FOR COMMUNITY WATER SYSTEMS**

<u>Population Served</u>	<u>Minimum Number of Samples Per Month</u>
25 to 1,000 <sup>1</sup>	1
1,001 to 2,500	2
2,501 to 3,300	3
3,301 to 4,100	4
4,101 to 4,900	5
4,901 to 5,800	6
5,801 to 6,700	7
6,701 to 7,600	8
7,601 to 8,500	9
8,501 to 12,900	10
12,901 to 17,200	15
17,201 to 21,500	20
21,501 to 25,000	25
25,001 to 33,000	30
33,001 to 41,000	40
41,001 to 50,000	50
50,001 to 59,000	60
59,001 to 70,000	70
70,001 to 83,000	80
83,001 to 96,000	90
96,001 to 130,000	100
130,001 to 220,000	120
220,001 to 320,000	150
320,001 to 450,000	180
450,001 to 600,000	210
600,001 to 780,000	240
780,001 to 970,000	270
970,001 to 1,230,000	300
1,230,001 to 1,520,000	330

<sup>1</sup>Includes public water systems ~~which~~ **that** have at least fifteen (15) service connections but serve fewer than twenty-five (25) persons.

If a community water system serving twenty-five (25) to one thousand (1,000) persons has no history of total coliform contamination in its current configuration and a sanitary survey conducted in the past five (5) years shows that the system is supplied solely by a protected ground water source and is free of sanitary defects, the commissioner may reduce the monitoring frequency specified in this subsection, in writing, except that in no case may the commissioner reduce the monitoring frequency to less than one (1) sample per quarter.

(c) The monitoring frequency for total coliforms for noncommunity water systems is as follows:

(1) A noncommunity water system using only ground water (except ground water under

the direct influence of surface water, as defined in section ~~4(22)~~ **1(29)** of this rule) and serving one thousand (1,000) or fewer persons must monitor each calendar quarter that the system provides water to the public, except that the commissioner may reduce this monitoring frequency, in writing, if a sanitary survey shows that the system is free of sanitary defects. Beginning June 29, 1994, the commissioner shall not reduce the monitoring frequency for a noncommunity water system using only ground water (except ground water under the direct influence of surface water, as defined in section ~~4(22)~~ **1(29)** of this rule) and serving one thousand (1,000) or fewer persons to less than once per year.

(2) A noncommunity water system using only ground water (except ground water under the direct influence of surface water, as defined in section ~~4(22)~~ **1(29)** of this rule) and serving more than one thousand (1,000) persons during any month must monitor at the same frequency as a like-sized community water system, as specified in subsection (b), except the commissioner may reduce this monitoring frequency, in writing, for any month the system serves one thousand (1,000) or fewer persons. The commissioner shall not reduce the monitoring frequency to less than once per year. For systems using ground water under the direct influence of surface water, subdivision (4) applies.

(3) A noncommunity water system using surface water, in total or in part, must monitor at the same frequency as a like-sized community water system, as specified in subsection (b), regardless of the number of persons it serves.

(4) A noncommunity water system using ground water under the direct influence of surface water, as defined in section ~~4(22)~~ **1(29)** of this rule, must monitor at the same frequency as a like-sized community water system specified in subsection (b). The system must begin monitoring at this frequency beginning six (6) months after the commissioner determines that the ground water is under the direct influence of surface water.

(d) The public water system must collect samples at regular time intervals throughout the month, except that a system which uses only ground water (except ground water under the direct influence of surface water, as defined in section ~~4(22)~~ **1(29)** of this rule) and serves four thousand nine hundred (4,900) persons or fewer, may collect all required samples on a single day if they are taken from different sites.

(e) Special purpose samples, such as those taken to determine whether disinfection practices are sufficient following pipe placement, replacement, or repair, shall not be used to determine compliance with the MCL for total coliforms in section 7 of this rule. Repeat samples taken under section 8.1 of this rule are not considered special purpose samples and must be used to determine compliance with the MCL for total coliforms required by section 7 of this rule. **Any sample not designated as special purpose prior to analysis by the laboratory shall be used to determine compliance with the MCL for total coliforms in section 7 of this rule.**

(f) A total coliform-positive sample invalidated under this subsection does not count towards meeting the minimum monitoring requirements of this section. The total coliform-positive sample may be invalidated only if the following conditions are met:

(1) The laboratory establishes that improper sample analysis caused the total coliform-positive result.

(2) The commissioner, on the basis of the results of repeat samples collected as required by section 8.1(a) through 8.1(d) of this rule, determines that the total coliform-positive sample resulted from a domestic or other nondistribution system plumbing problem. The commissioner cannot invalidate a sample on the basis of repeat sample results unless all repeat samples collected at the same tap as the original total coliform-positive sample are also total coliform-positive, and all repeat samples collected within five (5) service connections of the original tap are total coliform-negative, for example, the commissioner cannot invalidate a total coliform-positive sample on the basis of repeat samples if all the repeat samples are total coliform-negative or if the public water system has only one (1) service connection.

(3) The commissioner has substantial grounds to believe that a total coliform-positive result is due to a circumstance or condition which does not reflect water quality in the distribution system. In this case, the system must still collect all repeat samples required by section 8.1(a) through 8.1(d) of this rule and use them to determine compliance with the MCL for total coliforms in section 7 of this rule. To invalidate a total coliform-

positive sample under this subsection, the decision must be documented, in writing, and approved and signed by the supervisor of the state official who recommended the decision. The commissioner must make this document available to EPA and the public. The written documentation must state the specific cause of the total coliform-positive sample and what action the system has taken, or will take, to correct this problem. The commissioner may not invalidate a total coliform-positive sample solely on the grounds that all repeat samples are total coliform-negative.

(4) A laboratory must invalidate a total coliform sample, unless total coliforms are detected, if the sample produces a turbid culture in the absence of gas production using an analytical method where gas formation is examined, for example, the multiple-tube fermentation technique, produces a turbid culture in the absence of an acid reaction in the presence-absence (P-A) coliform test, or exhibits confluent growth or produces colonies too numerous to count with an analytical method using a membrane filter, for example, the membrane filter technique. If a laboratory invalidates a sample because of such interference, the system must collect another sample from the same location as the original sample within twenty-four (24) hours of being notified of the interference problem and have it analyzed for the presence of total coliforms. The system must continue to resample within twenty-four (24) hours and have the samples analyzed until it obtains a valid result. The commissioner may waive the twenty-four (24) hour time limit on a case-by-case basis.

*(Water Pollution Control Board; 327 IAC 8-2-8; filed Sep 24, 1987, 3:00 p.m.: 11 IR 707; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1019; errata filed Jan 9, 1991, 2:30 p.m.: 14 IR 1070; errata filed Aug 6, 1991, 3:45 p.m.: 14 IR 2258; filed Apr 12, 1993, 11:00 a.m.: 16 IR 2155)*

SECTION 9. 327 IAC 8-2-8.1 IS AMENDED TO READ AS FOLLOWS:

**327 IAC 8-2-8.1 Repeat monitoring for total coliform bacteria**

**Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3; IC 13-18-16**

**Affected: IC 13-18**

Sec. 8.1. (a) If a routine sample is total coliform-positive, the public water system must collect a set of repeat samples within twenty-four (24) hours of being notified **by the laboratory or the commissioner** of the positive result. A system which collects more than one (1) routine sample per month must collect no fewer than three (3) repeat samples for each total coliform-positive sample found. A system which collects one (1) routine sample per month or fewer must collect no fewer than four (4) repeat samples for each total coliform-positive sample found. The commissioner may extend the twenty-four (24) hour limit up to forty-eight (48) hours on a case-by-case basis if the system has a problem beyond its control in collecting the repeat samples within twenty-four (24) hours. **The system must have sufficient sample bottles on hand to collect any required repeat samples within twenty-four (24) hours of notification by the laboratory or the commissioner, or must have the ability to acquire sample bottles and collect samples within twenty-four (24) hours of notification by the laboratory or the commissioner or a positive total coliform sample.**

(b) The system must collect at least one (1) repeat sample from the sampling tap where the original total coliform-positive sample was taken, at least one (1) repeat sample at a tap within five (5) service connections upstream, and at least one (1) repeat sample at a tap within five (5) service connections downstream of the original sampling site. If a total coliform-positive sample is at the end of the distribution system, or one (1) away from the end of the distribution system, the commissioner may waive the requirement to collect at least one (1) repeat sample upstream or downstream of the original sampling site.

(c) The system must collect all repeat samples on the same day, except that the commissioner may allow a system with a single service connection to collect the required set of repeat samples over a four (4) day period or to collect a larger volume of repeat samples in one (1) or more sample containers of any size, as long as the total volume collected is at least four hundred (400) milliliters or three hundred (300) milliliters for systems which collect more than one (1) routine sample per month.

(d) If one (1) or more repeat samples in the set is total coliform-positive, the public water system must collect an additional set of repeat samples in the manner specified in subsections (a) through (c). The additional samples must be collected within twenty-four (24) hours of being

notified of the positive result, unless the commissioner extends the limit as provided in subsection (a). The system must repeat this process until either total coliforms are not detected in one (1) complete set of repeat samples or the system determines that the MCL for total coliforms in section 7 of this rule has been exceeded and notifies the commissioner.

(e) If a system collecting fewer than five (5) routine samples per month has one (1) or more total coliform-positive samples, and the commissioner does not invalidate the samples under section 8(f) of this rule, it must collect at least five (5) routine samples during the next month the system provides water to the public, except that the commissioner may waive this requirement if the following conditions are met:

(1) The commissioner may waive the requirement to collect five (5) routine samples the next month the system provides water to the public if the commissioner, or an agent approved by the commissioner, performs a site visit before the end of the next month the system provides water to the public. Although a sanitary survey need not be performed, the site visit must be sufficiently detailed to allow the commissioner to determine whether additional monitoring ~~and/or~~ **or** any corrective action **or both** is needed. An employee of the system shall not be approved to perform this site visit.

(2) The commissioner may waive the requirement to collect five (5) routine samples the next month the system provides water to the public if the commissioner has determined why the sample was total coliform-positive and establishes that the system has corrected the problem or will correct the problem before the end of the next month the system serves water to the public. In this case, the decision to waive the following month's additional monitoring requirement must be documented in writing, approved, and signed by the supervisor of the state official who recommends such a decision and made available to the EPA and public. The written documentation must describe the specific cause of the total coliform-positive sample and what action the system has taken ~~and/or~~ **or** will take to correct this problem. The requirement to collect five (5) routine samples the next month the system provides water to the public cannot be waived solely on the grounds that all repeat samples are total coliform-negative. Under this subdivision, a system must still take at least one (1) routine sample before the end of the next month it serves water to the public and use it to determine compliance with the MCL for total coliforms in section 7 of this rule, unless the commissioner has determined that the system has corrected the contamination problem before the system took the set of repeat samples required in subsections (a) through (d) and all repeat samples were total coliform-negative. The commissioner shall not waive the requirement for a system to collect repeat samples in subsections (a) through (d).

(f) After a system collects a routine sample and before it learns the results of the analysis of that sample, if it collects another routine sample from within five (5) adjacent service connections of the initial sample, and the initial sample, after analysis, is found to contain total coliforms, then the system may count the subsequent samples as a repeat sample instead of as a routine sample.

(g) Results of all routine and repeat samples not invalidated by the commissioner must be included in determining compliance with the MCL for total coliforms in section 7 of this rule.

**Any sample not designated as special purpose prior to analysis by the laboratory shall be used to determine compliance with the MCL for total coliforms in section 7 of this rule.**

*(Water Pollution Control Board; 327 IAC 8-2-8.1; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1021; errata filed Jan 9, 1991, 2:30 p.m.: 14 IR 1070; errata filed Aug 6, 1991, 3:45 p.m.: 14 IR 2258; filed Apr 12, 1993, 11:00 a.m.: 16 IR 2157)*

#### SECTION 10. 327 IAC 8-2-8.4 IS AMENDED TO READ AS FOLLOWS:

##### **327 IAC 8-2-8.4 Analytical methods for microbiological contaminants**

**Authority:** IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3; IC 13-18-16

**Affected:** IC 13-11-2; IC 13-14-8; IC 13-18-1; IC 13-18-2

Sec. 8.4. (a) A public water system shall analyze for microbiological contaminants as follows:

(1) The standard sample volume required for total coliform analysis, regardless of analytical method used, is one hundred (100) milliliters.

(2) Public water systems need only determine the presence or absence of total coliforms, and a determination of total coliform density is not required.

(3) Public water systems must conduct total coliform analyses in accordance with one (1) of the following analytical methods:

- (A) Total coliform fermentation technique<sup>2, 3, 4</sup> as set forth in Method 9221A\* and Method 9221B\*.
- (B) Total coliform membrane filter technique<sup>5</sup> as set forth in Method 9222A\*, Method 9222B\*, and Method 9222C\*.
- (C) Presence-absence (P-A) coliform test<sup>4, 5, 6</sup> as set forth in Method 9221D\*.
- (D) ONPG-MUG test<sup>6, 7</sup> as set forth in Method 9223\*.
- (E) Colisure test<sup>7, 8</sup>.
- (F) **E\*Colite<sup>®</sup> test\*.**
- (G) **m-ColiBlue24<sup>®</sup> test\*.**

(4) Public water systems must conduct fecal coliform analysis in accordance with the procedure in this subdivision. When the MTF technique or presence-absence (P-A) coliform test is used to test for total coliforms, shake the lactose-positive presumptive tube or P-A bottle vigorously and transfer the growth with a sterile three (3) millimeter loop or sterile applicator stick into brilliant green lactose bile broth and EC medium to determine the presence of total and fecal coliforms, respectively. For EPA-approved analytical methods which use a membrane filter, transfer the total coliform-positive culture by one (1) of the following methods:

- (A) Remove the membrane containing the total coliform colonies from the substrate with a sterile forceps and carefully curl and insert the membrane into a tube of EC medium. (The laboratory may first remove a small portion of selected colonies for verification.)
- (B) Alternately, the laboratory may swab the entire membrane filter surface with a sterile cotton swab and transfer the inoculum to EC medium (do not leave the cotton swab in the EC medium), or inoculate individual total coliform-positive colonies into EC medium.

Gently shake the inoculated EC tubes to ensure adequate mixing and incubate in a water bath at forty-four and one-half (**44.5**) degrees Celsius, (~~44.5°C~~), plus or minus two-tenths (**0.2**) degrees Celsius, (~~0.2°C~~), for twenty-four (24) hours, plus or minus two (2) hours. Gas production of any amount in the inner fermentation tube of the EC medium indicates a positive fecal coliform test. The preparation of EC medium is described in Method 9221E, ~~page 9-52~~, paragraph 1(a)\*. Public water systems need only determine the presence or absence of fecal coliforms; a determination of fecal coliform density is not required.

(5) Public water systems must conduct analysis of *Escherichia coli* in accordance with one (1) of the following analytical methods:

- (A) EC medium supplemented with fifty (50) micrograms per milliliter of 4-methylumbelliferyl-beta-D-glucuronide (MUG) (final concentration). EC medium is described in Method 9221E, ~~page 9-52~~, paragraph 1(a)\*. MUG may be added to EC medium before autoclaving. EC medium supplemented with fifty (50) micrograms per milliliter of MUG is commercially available. At least ten (10) milliliters of EC medium supplemented with MUG must be used. The inner inverted fermentation tube may be omitted. The procedure for transferring a total coliform-positive culture to EC medium supplemented with MUG shall be as specified in subdivision ~~(5)~~ **(4)** for transferring a total coliform-positive culture to EC medium. Observe fluorescence with an ultraviolet light three hundred sixty-six (366) nanometers (preferably with a six (6) watt lamp) in the dark after incubating tube at forty-four and one-half (**44.5**) degrees Celsius, (~~44.5°C~~), plus or minus two-tenths (**0.2**) degrees Celsius, (~~0.2°C~~) for twenty-four (24) hours, plus or minus two (2) hours.
- (B) Nutrient agar supplemented with one hundred (100) micrograms per milliliter of MUG (final concentration). Nutrient agar is described in Method 9221E\*, ~~pages 9-47 to 9-48\*~~. This test is used to determine if a total coliform-positive sample, as determined by the membrane filter technique or any other method in which a membrane filter is used contains *E. coli*. Transfer the membrane filter containing a total coliform colony(ies) to nutrient agar supplemented with one hundred (100) micrograms per milliliter (final concentration) of MUG. After incubating the agar plate at thirty-five (**35**) degrees Celsius (~~35°C~~) for four (4)



hours, observe the colony(ies) under ultraviolet light three hundred sixty-six (366) nanometers (preferably with a six (6) watt lamp) in the dark for fluorescence. If fluorescence is visible, E. coli are present.

**(C) Minimal Medium ONPG-MUG (MMO-MUG) Test as described in the article “National Field Evaluation of a Defined Substrate Methods for the Simultaneous Detection of Total Coliforms and Escherichia coli from Drinking Water: Comparison with Presence-Absence Techniques”.** If the MMO-MUG test is total coliform-positive after a twenty-four (24) hour incubation, test the medium for fluorescence with a three hundred sixty-six (366) nanometer ultraviolet light (preferably with a six (6) watt lamp) in the dark. If fluorescence is observed, the sample is E. coli-positive. If fluorescence is questionable (cannot be definitively read) after twenty-four (24) hours incubation, incubate the culture for an additional four (4) hours, but not to exceed twenty-eight (28) hours total, and again test the medium for fluorescence. The MMO-MUG test with hepes buffer in lieu of phosphate buffer is the only approved formulation for the detection of E. coli.

**(D) The Colisure test\*.**

**(E) The Membrane Filter Method with MI agar\*.**

**(F) E\*Colite<sup>®</sup> test\*.**

**(G) m-ColiBlue24<sup>®</sup> test\*.**

(6) As an option to subdivision (5)(C), a system with a total coliform-positive, MUG-negative, MMO-MUG test may further analyze the culture for the presence of E. coli by transferring a one-tenth (0.1) milliliter, twenty-eight (28) hour MMO-MUG culture to EC medium plus MUG with a pipet. The formulation and incubation conditions of EC medium plus MUG and observation of the results are described in subdivision (5)(A).

(b) Response to a violation shall be as follows:

(1) A public water system which has exceeded the MCL for total coliforms in section 7 of this rule must report the violation to the commissioner no later than the end of the next business day after it learns of the violation and notify the public in accordance with section 15 of this rule.

(2) A public water system which has failed to comply with a coliform monitoring requirement, including the sanitary survey requirement, must report the monitoring violation to the commissioner within ten (10) days after the system discovers the violation, and notify the public in accordance with section 15 of this rule.

<sup>1</sup>The time from sample collection to initiation of analysis cannot exceed thirty (30) hours.

**Systems are encouraged but not required to hold samples below ten (10) degrees Celsius during transit.**

<sup>2</sup>Lactose broth, as commercially available, may be used in lieu of lauryl tryptose broth, if the system conducts at least twenty-five (25) parallel tests between this medium and lauryl tryptose broth using the water normally tested, and this comparison demonstrates that the false-positive rate **and false-negative rate** for total ~~coliforms~~ **coliform**, using lactose broth, is less than ten percent (10%).

<sup>3</sup>If inverted tubes are used to detect gas production, the media should cover these tubes at least one-half (1/2) to two-thirds ( ) after the sample is added.

<sup>4</sup>No requirement exists to run the completed phase on ten percent (10%) of all total coliform-positive confirmed tubes.

<sup>5</sup>**MI agar may also be used\*.**

<sup>5,6</sup>Six-times formulation strength may be used if the medium is filter-sterilized rather than autoclaved.

<sup>6,7</sup>The OPNG-MUG test is also known as the Autoanalysis Colilert System.

<sup>7</sup>~~The Colisure test must be incubated for twenty-eight (28) hours before examining the results. If an examination of the results at twenty-eight (28) hours is not convenient, then results may be examined at any time between twenty-eight (28) and forty-eight (48) hours.~~

<sup>8</sup>**The Colisure Test may be read after an incubation time of twenty-four (24) hours.**

<sup>9</sup>**The agency strongly recommends that laboratories evaluate the false-positive and negative rates for the method or methods they use for monitoring total coliforms. The agency also encourages laboratories to establish false-positive and negative rates within their own laboratory and sample matrix (drinking water or source water or both) with the intent that if the method they choose has an unacceptable false-positive or negative rate, another method can be used. The agency suggests that laboratories perform these studies**

on a minimum of five percent (5%) of all total coliform-positive samples, except for those methods where verification or confirmation or both is already required (e.g., the M-Endo and LES Endo Membrane Filter Tests, Standard Total Coliform Fermentation Technique, and Presence-Absence Coliform Test). Methods for establishing false-positive and negative-rates may be based on lactose fermentation, the rapid test for  $\beta$ -galactosidase and cytochrome oxidase, multi-test identification systems, or equivalent confirmation tests. False-positive and false-negative information is often available in published studies, from the manufacturer, or both.

\*The methods referenced in this section may be obtained as follows:

(1) Methods 9221A, 9221B, 9222A, 9222B, 9222C, 9221D, 9223, and 9221E may be found in "Standard Methods for the Examination of Water and Wastewater", 1992, American Public Health Association, et al., 18th edition, or **"Standard Methods for the Examination of Water and Wastewater", 1995, American Public Health Association, et al., 19<sup>th</sup> edition**, available from the American Public Health Association, et al., 1015 Fifteenth Street N.W., Washington, D.C. 20005.

(2) A description of the Colisure test may be obtained from ~~the Millipore Corporation, Technical Services Department, 80 Ashby Road, Bedford, Massachusetts 01730.~~ **IDEXX Laboratories, Inc., One IDEXX Drive, Westbrook, Maine 04092.**

(3) The minimal medium ONPG-MUG test may be found in "National Field Evaluation of a Defined Substrate Method for the Simultaneous Detection of Total Coliforms and Escherichia coli from Drinking Water: Comparison with Presence-Absence Techniques", (Edberg, et al.), Applied and Environmental Microbiology, Volume 55, pages 1003-1008, April 1989.

(4) Preparation and use of MI agar is set forth in the article, "New medium for the simultaneous detection of total coliform and Escherichia coli in water" by Brenner, K.P., et al., 1993, Applied Environmental Microbiology, 59:3534-3544. Also available from the Office of Water Resource Center (RC-4100), 401 M. Street S.W., Washington, D.C. 20460, EPA/600/J-99/225.

(5) A description of the E\*Colite<sup>®</sup> test, "Presence/Absence for Total Coliforms and E. coli in Water", December 21, 1997, is available from Charm Sciences, Inc., 36 Franklin Street, Malden, Massachusetts 02148-4120.

(6) A description of the m-ColiBlue24<sup>®</sup> test, August 17, 1999, is available from the Hach Company, 100 Dayton Avenue, Ames, Iowa 50010.

These methods are available for copying at the Indiana Department of Environmental Management, Office of Water Management, 100 North Senate Avenue, Room 1255, Indianapolis, IN Indiana 46204. (*Water Pollution Control Board; 327 IAC 8-2-8.4; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1023; errata filed Jan 9, 1991, 2:30 p.m.: 14 IR 1070; filed Apr 12, 1993, 11:00 a.m.: 16 IR 2158; filed Aug 25, 1997, 8:00 a.m.: 21 IR 51; errata filed Dec 10, 1997, 3:45 p.m.: 21 IR 1348*)

SECTION 11. 327 IAC 8-2-8.7 IS AMENDED TO READ AS FOLLOWS:

**327 IAC 8-2-8.7 Analytical and monitoring requirements; fecal coliform, total coliform, turbidity, disinfection**

**Authority:** IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3; IC 13-18-16

**Affected:** IC 13-11-2; IC 13-14-8; IC 13-18-1; IC 13-18-2

Sec. 8.7. Only the analytical methods and procedures specified in this section, or otherwise approved by EPA, may be used to demonstrate compliance with the requirements of sections 8.5 and 8.6 of this rule. ~~Public water systems must conduct analysis of pH and temperature in accordance with the methods listed in section 45(a) of this rule. Public water systems must conduct analysis of total coliforms, fecal coliforms, heterotrophic plate count, and turbidity with one (1) of the following analytical methods:~~ **Measurements for pH, turbidity, temperature, and residual disinfectant concentrations must be conducted by a person approved by the commissioner. Measurements for total coliforms, fecal coliforms, and HPC must be conducted by a laboratory certified by the commissioner or EPA to do such analysis. Until laboratory certification criteria are developed for the analysis of fecal coliforms and HPC, any laboratory certified for total coliforms analysis by the commissioner or EPA is deemed certified for fecal coliforms and HPC analysis. The following procedures shall be conducted in accordance with the publications listed as**

**follows:**

- (1) Total coliform<sup>1</sup> ~~concentration~~<sup>4</sup> as set forth in the following:
  - (A) Total coliform fermentation technique<sup>2,3,4</sup>, ~~pages~~ **Method 9221A\***, B\*, and C\*.
  - (B) Total coliform membrane filter technique<sup>7</sup>, ~~pages~~ **Method 9222A\***, B\*, and C\*.
  - (C) ONPG-MUG test membrane<sup>5</sup>, ~~page~~ **Method 9223\***<sup>5</sup>.
- (2) Fecal coliform ~~concentration~~ **coliforms**<sup>6</sup> as set forth in:
  - (A) fecal coliform procedure<sup>6,7</sup>, ~~page~~ **Method 9221E\***; or
  - (B) fecal coliform filter procedure, ~~page~~ **Method 9222D**.
- (3) Heterotrophic ~~plate count~~, **bacteria**<sup>1</sup>, Method 9215B\*, pour plate method.
- (4) Turbidity as set forth in:
  - (A) nephelometric method, ~~page~~ **Method 2130B\*** or Method 180.1\*; or
  - (B) Great Lakes Instruments method, Method 2\*.
- (5) Residual disinfectant concentrations for free chlorine and combined chlorine (chloramines) as set forth in the following methods:
  - (A) Method 4500-Cl D\*, amperometric titration method.
  - (B) Method 4500-Cl F\*, DPD ferrous titrimetric method.
  - (C) Method 4500-Cl G\*, DPD colorimetric method.
  - (D) Method 4500-Cl H\*, syringaldazine (FACTS).
  - (E) DPD colorimetric test kits, if approved by the commissioner.
  - (F) Free chlorine residuals may be measured continuously by adapting a specified chlorine residual method for use with a continuous monitoring instrument, provided the chemistry, accuracy, and precision remain the same. Instruments used for continuous monitoring must be calibrated with a grab sample measurement at least every five (5) days, or with a protocol approved by the commissioner.
- (6) Residual disinfectant concentrations for ozone by the indigo method, Method 4500-O<sub>3</sub> B\*.
- (7) Residual disinfectant concentrations for chlorine dioxide must be measured by Method 4500-ClO<sub>2</sub> C, amperometric method, Method 4500-ClO<sub>2</sub> E\*, amperometric method, or Method 4500-ClO<sub>2</sub> D\*, DPD method.
- (8) Residual disinfectant concentrations for total chlorine by the following methods:
  - (A) Method 4500-Cl D\*, amperometric titration.
  - (B) Method 4500-Cl E\*, amperometric titration (low level measurement).
  - (C) Method 4500-Cl F\*, DPD ferrous titrimetric.
  - (D) Method 4500-Cl I, iodometric electrode.
  - (E) Method 4500-Cl G\*, DPD colorimetric.
  - (F) Total chlorine residuals may be measured continuously by adapting a specified chlorine residual method for use with a continuous monitoring instrument, provided the chemistry, accuracy, and precision remain the same. Instruments used for continuous monitoring must be calibrated with a grab sample measurement at least every five (5) days, or with a protocol approved by the commissioner.

<sup>1</sup>The time from sample collection to initiation of analysis may not exceed eight (8) hours. Systems ~~are encouraged but not required to~~ **must** hold samples below ten (10) degrees Celsius (10°C) during transit.

<sup>2</sup>Lactose broth, as commercially available, may be used in lieu of lauryl tryptose broth if the system conducts at least twenty-five (25) parallel tests between this medium and lauryl tryptose broth using the water normally tested, and this comparison demonstrates that the false-positive rate and false-negative rate for total coliforms using lactose broth, is less than ten percent (10%).

<sup>3</sup>Media should cover inverted tubes at least one-half (½) to two-thirds ( ) after the sample is added.

<sup>4</sup>No requirement exists to run the completed phase on ten percent (10%) of all total coliform-positive confirmed tubes.

<sup>5</sup>The ONPG-MUG test is also known as the Autoanalysis Colilert System.

<sup>6</sup>**MI Agar may also be used\*.**

<sup>6,7</sup>A-1 broth may be held up to three (3) months in a tightly closed screwcap tube at four (4) degrees Celsius. (4°C).

**\*The following methods are incorporated by reference:**

(1) **Methods** referenced in this section, except Method 180.1 and the Great Lakes Instruments Method 2, may be found in "Standard Methods for the Examination of Water and Wastewater", 1992, American Public Health Association, et al., 18th edition and must be done using procedures found in "Technical Notes on Drinking Water Methods", EPA-600/R-94-173, October 1994, available from NTIS, PB95-104766, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161. Method 180.1 and the Great Lakes Instrument Method 2 may be obtained as follows: **"18<sup>th</sup> Edition of Standard Methods for the Examination of Water and Wastewater" and "19<sup>th</sup> Edition of Standard Methods for the Examination of Water and Wastewater", 1992 and 1995, available from the American Public Health Association, 1015 Fifteenth Street, Washington, D.C. 20005. Either edition may be used.**

(4) (2) Method 180.1 may be found in "Methods for the Determination of Inorganic Substances in Environmental Samples", EPA-600/R-93-100, August 1993, available from NTIS, PB94-121811, ~~PB95-104766~~, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161.

(2) (3) The Great Lakes Instrument (GLI) Method 2 may be found in "Turbidity", November 2, 1992, Great Lakes Instruments, Inc., 8855 North 55th Street, Milwaukee, Wisconsin 53223.

These methods are available for copying at the Indiana Department of Environmental Management, Office of Water Management, 100 North Senate Avenue, Room 1255, Indianapolis, ~~IN~~ **Indiana** 46204. (*Water Pollution Control Board; 327 IAC 8-2-8.7; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1025; errata filed Jan 9, 1991, 2:30 p.m.: 14 IR 1070; filed Apr 12, 1993, 11:00 a.m.: 16 IR 2161; filed Aug 25, 1997, 8:00 a.m.: 21 IR 53; errata filed Dec 10, 1997, 3:45 p.m.: 21 IR 1348*)

SECTION 12. 327 IAC 8-2-10.1 IS AMENDED TO READ AS FOLLOWS:

### **327 IAC 8-2-10.1 Analytical methods for radioactivity**

**Authority:** IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3; IC 13-18-16

**Affected:** IC 13-18

Sec. 10.1. (a) The ~~following~~ **methods specified in "Interim Radiochemical Methodology for Drinking Water," Environmental Monitoring and Support Laboratory, EPA-600/4-75-008, U.S. EPA, Cincinnati, Ohio 45268, or those listed as follows, shall be used to determine compliance with sections 9 through 10 of this rule, except in cases where alternative methods have been approved in accordance with section 32 of this rule:**

(1) ~~Gross alpha and beta: Method 302 "Gross Alpha and Beta Radioactivity in Water" Standard Methods for the Examination of Water and Wastewater, 13th Edition, American Public Health Association, New York, NY 1971.~~

(2) ~~Total radium: Method 304 "Radium in Water by Precipitation," ibid.~~

(3) ~~Radium-226: Method 305 "Radium-226 by Radon in Water," ibid.~~

(4) ~~Strontium-89, 90: Method 303 "Total Strontium and Strontium-90 in Water," ibid.~~

(5) ~~Tritium: Method 306 "Tritium in Water," ibid.~~

(6) ~~Cesium-134: ASTM D-2459 "Gamma Spectrometry in Water," 1975 Annual Book of ASTM Standards, Water and Atmospheric Analysis, Part 31, American Society for Testing and Materials, Philadelphia, PA (1975).~~

(7) ~~Uranium: ASTM D-2907 "Microquantities of Uranium in Water by Fluorometry," ibid.~~

(1) One (1) of the following methods shall be used to test for gross alpha and beta:

(A) Method 900.0\*.

(B) Page 1 of "Interim Radiochemical Methodology for Drinking Water\*\*".

(C) Method 00-01\*.

(D) Page 1 of "Radiochemical Analytical Procedures for Analysis of

(E) Method 302\*.

(F) Method 7110 B\*.

(G) Method R-1120-76\*.

(2) One (1) of the following methods shall be used to test for gross alpha:

(A) Method 00-02\*.

(B) Method 7110 C\*.

(3) One (1) of the following methods shall be used to test for radium 226:

- (A) Method 903.1\*.
  - (B) Method 903.0\*.
  - (C) Page 16 of “Interim Radiochemical Methodology for Drinking Water\*”.
  - (D) Page 13 of “Interim Radiochemical Methodology for Drinking Water\*”.
  - (E) Method Ra-04\*.
  - (F) Method Ra-03\*.
  - (G) Page 19 of “Radiochemical Analytical Procedures for Analysis of
  - (H) Method 7500-Ra C\*.
  - (I) Method 304\*.
  - (J) Method 305\*.
  - (K) Method 7500-Ra B\*.
  - (L) Method D 3454-91\*.
  - (M) Method D 2460-90\*.
  - (N) Method R-1141-76\*.
  - (O) Method R-1142-76\*.
  - (P) Method Ra-05\*.
  - (Q) New York Method.
- (4) One (1) of the following methods shall be used to test for radium 228:
- (A) Method 904.0\*.
  - (B) Page 24 of “Interim Radiochemical Methodology for Drinking Water\*”.
  - (C) Method Ra-05\*.
  - (D) Page 19 of “Radiochemical Analytical Procedures for Analysis of
  - (E) Method 304\*.
  - (F) Method 7500-Ra D\*.
  - (G) Method R-1142-76\*.
  - (H) New York Method.
- (5) One (1) of the following methods shall be used to test for uranium:
- (A) Method 908.0\*.
  - (B) Method 908.1\*.
  - (C) Method 00-07\*.
  - (D) Page 33 of “Radiochemical Analytical Procedures for Analysis of
  - (E) 7500-U B\*.
  - (F) 7500-U C\*.
  - (G) D2907-91\*.
  - (H) D 3972-90\*.
  - (I) D 5174-91\*.
  - (J) R-1180-76\*.
  - (K) R-1181-76\*.
  - (L) R-1182-76\*.
  - (M) U-04\*.
  - (N) U-02\*.
  - (O) New Jersey Method.
- (6) One (1) of the following methods shall be used to test for radioactive cesium:
- (A) Method 901.0\*.
  - (B) Method 901.1\*.
  - (C) Page 92 of “Radiochemical Analytical Procedures for Analysis of
  - (D) Method 7500-Cs B\*.
  - (E) Method 7120\*.
  - (F) Method D 2459-72\*.
  - (G) Method D 3649-91\*.
  - (H) Method R-1111-76\*.
  - (I) Method R-1110-76\*.
  - (J) Method 4.5.2.3\*.
- (7) One (1) of the following methods shall be used to test for radioactive iodine:
- (A) Method 902.0\*.
  - (B) Method 901.1\*.
  - (C) Page 6 of “Interim Radiochemical Methodology for Drinking Water\*”.

- (D) Page 9 of “Interim Radiochemical Methodology for Drinking Water\*\*”.
  - (E) Page 92 of “Radiochemical Analytical Procedures for Analysis of
    - (F) Method 7500-I B\*.
    - (G) Method 7500-I C\*.
    - (H) Method 7500-I D\*.
    - (I) Method 7120\*.
    - (J) Method D 4785-88\*.
    - (K) Method 4.5.2.3\*.
- (8) One (1) of the following methods shall be used to test for radioactive strontium 89 and 90:
- (A) Method 905.0\*.
  - (B) Page 29 of “Interim Radiochemical Methodology for Drinking Water\*\*”.
  - (C) Method Sr-04\*.
  - (D) Page 65 of “Radiochemical Analytical Procedures for Analysis of
    - (E) Method 303\*.
    - (F) Method 7500-Sr B\*.
    - (G) Method R-1160-76\*.
    - (H) Method Sr-01\*.
    - (I) Method Sr-02\*.
- (9) One (1) of the following methods shall be used to test for tritium:
- (A) Method 906.0\*.
  - (B) Page 34 of “Interim Radiochemical Methodology for Drinking Water\*\*”.
  - (C) Method H-02\*.
  - (D) Page 87 of “Radiochemical Analytical Procedures for Analysis of
    - (E) Method 306\*.
    - (F) Method 7500-3H B\*.
    - (G) Method D 4107-91\*.
    - (H) Method R-1171-76\*.
- (10) One (1) of the following methods shall be used to test for gamma emitters:
- (A) Method 901.1\*.
  - (B) Method 902.0\*.
  - (C) Method 901.0\*.
  - (D) Page 92 of “Radiochemical Analytical Procedures for Analysis of
    - (E) Method 7120\*.
    - (F) Method 7500-Cs B\*.
    - (G) Method 7500-I B\*.
    - (H) Method D 3649-91\*.
    - (I) Method D 4785-88\*.
    - (J) Method R-1110-76\*
    - (K) Method 4.5.2.3\*.

(b) When the identification and measurement of radionuclides other than those listed in subsection (a) is required, the following references are to be used, except in cases where alternative methods have been approved in accordance with section 32 of this rule:

- (1) Procedures for Radiochemical Analysis of Nuclear Reactor Aqueous Solutions, H.L. Krieger and S. Gold, EPA-R4-73-014, U.S. EPA, Cincinnati, Ohio, May 1973.
- (2) HASL Procedure Manual, edited by John H. Harley. HASL 300, ERDA Health and Safety Laboratory, New York, ~~NY~~ New York 1973.

(c) For the purpose of monitoring radioactivity concentrations in drinking water, the required sensitivity of the radioanalysis is defined in terms of a detection limit. The detection limit shall be that concentration which can be counted with a precision of plus or minus one hundred percent (100%) at the ninety-five percent (95%) confidence level (one and ninety-six hundredths (1.96) where  $s$  is the standard deviation of the net counting rate of the sample). Compliance requirements are as follows:

- (1) To determine compliance with section 9(1) of this rule, the detection limit shall not exceed one (1) picocuri per liter.

(2) To determine compliance with section 9(2) of this rule, the detection limit shall not exceed three (3) picocuri per liter.

(3) To determine compliance with section 10 of this rule, the detection limits shall not exceed the concentrations listed in the following table:

<u>Radionuclide</u>	<u>Detection limit</u>
Tritium	1,000 pCi/l
Strontium-89	10 pCi/l
Strontium-90	2 pCi/l
Iodine-131	1 pCi/l
Cesium-134	10 pCi/l
Gross beta	4 pCi/l
Other radionuclides	1/10 of the applicable limit

Detection limits for manmade beta particle and photon emitters:

(d) To determine compliance with the MCL listed in sections 9 through 10 of this rule, averages of data shall be used and shall be rounded to the same number of significant figures as the MCL for the contaminant in question.

**\*The methods referenced in this section may be obtained as follows:**

(1) Methods 900.0, 903.1, 903.0, 904.0, 908.0, 908.1, 901.0, 901.1, 902.0, 905.0, and 906.0 may be found in "Prescribed Procedures for Measurement of Radioactivity in Drinking Water", EPA 600/4-80-032, August 1980, PB 80-224744. Available from U.S. Department of Commerce, National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, Virginia 22161, 800-553-6847.

(2) "Interim Radiochemical Methodology for Drinking Water", EPA 600/4-75-008 (revised), March 1976, PB 253258. Available from U.S. Department of Commerce, National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, Virginia 22161, 800-553-6847.

(3) Methods 00-01, 00-02, Ra-04, Ra-03, Ra-05, 00-07, Sr-04, and H-02 may be found in "Radiochemistry Procedures Manual", EPA 520/5-84-006, December 1987, PB 84-215581. Available from U.S. Department of Commerce, National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, Virginia 22161, 800-553-6847.

(4) "Radiochemical Analytical Procedures for Analysis of Environmental Samples", March 1979, EMSL LV 053917. Available from U.S. Department of Commerce, National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, Virginia 22161, 800-553-6847.

(5) Methods 7110 B, 7110 C, 7500-Ra C, 7500-Ra B, 7500-Ra D, 7500-U B, 7500-Cs B, 7500-I B, 7500-I C, 7500-I D, 7500-Sr B, and 7500-3H B may be found in "Standard Methods for the Analysis of Water and Wastewater", 17<sup>th</sup>, 18<sup>th</sup>, and 19<sup>th</sup> Editions, 1989, 1992, and 1995. Available from American Public Health Association, 1015 Fifteenth Street N.W., Washington D.C. 20005.

(6) Methods 302, 304, 305, 303, and 306 may be found in "Standard Methods for the Analysis of Water and Wastewater", 13<sup>th</sup> Edition, 1971. Available from American Public Health Association, 1015 Fifteenth Street N.W., Washington D.C. 20005.

(7) Method 7500-U C may be found in "Standard Methods for the Analysis of Water" 17<sup>th</sup> and 18<sup>th</sup> Editions, 1971, 1989. Available from American Public Health Association, 1015 Fifteenth Street N.W., Washington D.C. 20005.

(8) Method 7120 may be found in "Standard Methods for the Analysis of Water and Wastewater", 19<sup>th</sup> Edition, 1995. Available from American Public Health Association, 1015 Fifteenth Street N.W., Washington D.C. 20005.

(9) Methods D 3454-91, D 2460-90, D2907-91, D 3972-90, D 5174-91, D 2459-72, D 3649-91, D4785-88, and D 4107-91 may be found in Annual Book of ASTM Standards, Vol 11.02, 1994. Available from American Society of Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, Pennsylvania 19428.

(10) Methods R-1120-76, R-1141-76, R-1140-76, R-1142-76, R-1180-76, R-1181-76, R-1182-76, R-1111-76, R-1110-76, R-1160-76, and R-1171-76 may be found in "Methods for Determination of Radioactive Substances in Water and Fluvial Sediments", Chapter A5 in Book 5 of Techniques of Water-Resources Investigations of the United States Geological Survey, 1977. Available from U.S. Geologic Survey (USGS) Information Services, Box 25286, Federal Center, Denver, Colorado 80225-0425.

(11) Methods U-04, U-2, Ra-05, 4.5.2.3, Sr-01, and Sr-02 may be found in "EML<sup>th</sup> Edition, Volume 1, 1990. Available from Environmental Measurements Laboratory, U.S. Department of Energy (DOE), 376 Hudson Street, New York, New York 10014-3621.

(12) New York Methods may be found in "Determination of Ra-226 and Ra-228 (Ra-02)", January 1980, Revised June 1982. Available from Radiological Sciences Institute Center for Laboratories and Research, New York State Department of Health, Empire State Plaza, Albany, New York 12201.

(13) New Jersey Method may be found in "Determination of Radium 228 in Drinking Water", August 1980. Available from State of New Jersey, Department of Environmental Protection, Division of Environmental Quality, Bureau of Radiation and Inorganic Analytical Services, 9 Ewing Street, Trenton, New Jersey 08625.

*(Water Pollution Control Board; 327 IAC 8-2-10.1; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1028; errata filed Aug 6, 1991, 3:45 p.m.: 14 IR 2258)*

SECTION 13. 327 IAC 8-2-13 IS AMENDED TO READ AS FOLLOWS:

**327 IAC 8-2-13 Reporting requirements; test results and failure to comply**

**Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3; IC 13-18-16**

**Affected: IC 13-18**

Sec. 13. (a) Except where a shorter period is specified in this rule, the supplier of water **or the certified laboratory, provided the supplier of water has granted permission in writing to the laboratory using forms provided by the commissioner, and that permission is on file with the commissioner,** shall report to the commissioner the results of any test measurement or analysis required by this rule within:

- (1) the first ten (10) days following the month in which the result is received; or
- (2) the first ten (10) days following the end of the required monitoring period as stipulated by the commissioner, whichever is shorter.

(b) The supplier of water **or the certified laboratory, provided the supplier of water has granted permission in writing to the laboratory using forms provided by the commissioner, and that permission is on file with the commissioner,** shall report to the commissioner within forty-eight (48) hours **of completion of laboratory analysis** the failure to comply with any MCL and any other requirement set forth in this rule **by telephone or the methods specified in subsection (e). If notification is made by telephone, the results must follow using one (1) of the methods specified in subsection (e) within forty-eight (48) hours of the telephone notification.**

(c) The supplier of water **or the certified laboratory, provided the supplier of water has granted permission in writing to the laboratory using forms provided by the commissioner, and that permission is on file with the commissioner,** shall report to the commissioner within (48) hours of completion of laboratory analysis any positive total coliform results by telephone or the methods specified in subsection (e). If notification is made by telephone, the results must follow using one (1) of the methods specified in subsection (e) within forty-eight (48) hours of the telephone notification.

~~(e)~~ (d) The supplier of water, upon initiation of each public notification required by section 15 of this rule, shall submit to the commissioner a representative copy of each type of notice distributed, published, posted, or made available to the persons served by the system or to



the media.

**(e) The submittal of the information required under this section shall be submitted in one (1) of the following manners:**

- (1) Mail.**
- (2) Facsimile.**
- (3) Electronic mail.**
- (4) Hand delivery.**
- (5) Other means approved by the commissioner.**

*(Water Pollution Control Board; 327 IAC 8-2-13; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1030)*

SECTION 14. 327 IAC 8-2-14 IS AMENDED TO READ AS FOLLOWS:

**327 IAC 8-2-14 Reporting and record keeping requirements; systems that provide filtration**

**Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3; IC 13-18-16**  
**Affected: IC 13-18**

Sec. 14. (a) Effective June 29, 1993, a public water system that uses a surface water source or a ground water source under the direct influence of surface water and provides filtration treatment must report monthly to the commissioner the information specified in this section. **Systems shall submit information to the commissioner using the methods specified in section 13(e) of this rule.**

(b) Turbidity measurements as required by section 8.8(b) of this rule must be reported within ten (10) days after the end of each month the system serves water to the public. Information that must be reported includes the following:

- (1) The total number of filtered water turbidity measurements taken during the month.
- (2) The number and percentage of filtered water turbidity measurements taken during the month which are less than or equal to the turbidity limits specified in section 8.5(c) of this rule for the filtration technology being used.
- (3) The date and value of any turbidity measurements taken during the month which exceed five (5) nephelometric turbidity units (NTU).

(c) Disinfection information specified in section 8.8 of this rule must be reported to the commissioner within ten (10) days after the end of each month the system serves water to the public. Information that must be reported includes the following:

- (1) For each day, the lowest measurement of residual disinfectant concentration in milligrams per liter in water entering the distribution system.
- (2) The date and duration of each period when the residual disinfectant concentration in water entering the distribution system fell below two-tenths (0.2) milligram per liter and when the commissioner was notified of the occurrence.
- (3) The following information on the samples taken in the distribution system in conjunction with total coliform monitoring under section 8.6 of this rule:
  - (A) Number of instances where the residual disinfectant concentration is measured.
  - (B) Number of instances where the residual disinfectant concentration is not measured but heterotrophic bacteria plate count (HPC) is measured.
  - (C) Number of instances where the residual disinfectant concentration is measured but not detected and no HPC is measured.
  - (D) Number of instances where no residual disinfectant concentration is detected and where HPC is greater than five hundred (500) per milliliter.
  - (E) Number of instances where the residual disinfectant concentration is not measured and HPC is greater than five hundred (500) per milliliter.
  - (F) For the current and previous month the system serves water to the public, the value of V in the following formula:

$$\text{func } \{V \sim \{c+d+e\} \text{ OVER } \{a+b\} \sim \text{times} \sim \{100\}\}$$

Where: a = the value in clause (A)  
b = the value in clause (B)  
c = the value in clause (C)  
d = the value in clause (D)

e = the value in clause (E)

(G) The commissioner may determine, based on site-specific considerations, that a system has no means for having a sample transported and analyzed for HPC by a certified laboratory within the requisite time and temperature conditions specified by section 8.7(3) of this rule and that the system is providing adequate disinfection in the distribution system, the requirements of clauses (A) through (F) do not apply.

(4) A system need not report the data listed in subdivision (1) if all data listed in subdivisions (1) through (3) remain on file at the system and the commissioner determines that the system has submitted all the information required by subdivisions (1) through (3) for at least twelve (12) months.

(d) Each system, upon discovering that a waterborne disease outbreak potentially attributable to that water system has occurred, must report that occurrence to the commissioner as soon as possible, but no later than by the end of the next business day. If at any time the turbidity exceeds five (5) NTU, the system must inform the commissioner as soon as possible, but no later than the end of the next business day. If at any time the residual falls below two-tenths (0.2) milligram per liter in the water entering the distribution system, the system must notify the commissioner as soon as possible, but no later than the end of the next business day. The system also must notify the commissioner by the end of the next business day whether or not the residual was restored to at least two-tenths (0.2) milligram per liter within four (4) hours. (*Water Pollution Control Board; 327 IAC 8-2-14; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1031; filed Apr 12, 1993, 11:00 a.m.: 16 IR 2163*)

#### SECTION 15. 327 IAC 8-2-15 IS AMENDED TO READ AS FOLLOWS:

##### **327 IAC 8-2-15 Failure to comply; maximum contaminant level, treatment technique, or variance schedule**

**Authority:** IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3; IC 13-18-16

**Affected:** IC 13-18

Sec. 15. (a) The owner or operator of a public water system which fails to comply with an applicable MCL or treatment technique established by this rule ~~or which fails to comply with the requirements of any schedule prescribed pursuant to a variance or exemption~~, shall initially notify persons served by the system as follows, except as provided by subsection (d):

(1) By publication in a daily newspaper of general circulation in the area served by the system as soon as possible, but in no case later than fourteen (14) days after the violation or failure. If the area served by a public water system is not served by a daily newspaper of general circulation, notice shall instead be given by publication in a weekly newspaper of general circulation serving the area.

(2) By mail delivery (by direct mail or with the water bill) or by hand delivery, not later than forty-five (45) days after the violation or failure. The commissioner may waive mail or hand delivery if it is determined that the owner or operator of the public water system in violation has corrected the violation or failure within the forty-five (45) day period.

The commissioner must make the waiver in writing within the forty-five (45) day period.

(3) For violations of MCLs of contaminants that may pose an acute risk to human health, by furnishing a copy of the notice to the radio and television stations serving the area served by the public water system as soon as possible, but in no case later than seventy-two (72) hours after the violation. The following are acute violations:

(A) Any violations specified by the commissioner as posing an acute risk to human health.

(B) Violations of the MCL for nitrate and/or nitrite as defined in section 4(a) of this rule and determined according to section 4.1(e) of this rule.

(C) Violation of the MCL for total coliforms, when fecal coliforms or *E. coli* are present in the water distribution system as specified in section 7(a) and 7(b) of this rule.

(b) Except as provided in subsection (c), following the initial notice given under subsection (a), the owner or operator of the public water system must give notice at least once every three (3) months by mail delivery (by direct mail or with the water bill) or by hand delivery, for as long as the violation or failure exists.

(c) In lieu of the requirements of subsections (a) and (b), the following apply:

(1) The owner or operator of a community water system in an area that is not served by a daily or weekly newspaper of general circulation must give notice as soon as possible, but no later than seventy-two (72) hours after the violation or failure for acute violations (as defined in subsection (a)) or within fourteen (14) days after the violation or failure (for any other violation) by hand delivery or by continuous posting in conspicuous places within the area served by the system. Posting must continue for as long as the violation or failure exists. Notice by hand delivery must be repeated at least every three (3) months as long as the violation or failure exists.

(2) The owner or operator of a noncommunity water system may give notice as soon as possible, but no later than seventy-two (72) hours after the violation or failure for acute violations (as defined in subsection (a)) or within fourteen (14) days after the violation or failure (for any other violation) by hand delivery or by continuous posting in conspicuous places within the area served by the system. Posting must continue for as long as the violation or failure exists. Notice by hand delivery must be repeated at least every three (3) months for as long as the violation or failure exists.

(d) The owner or operator of a public water system which fails to perform monitoring or fails to comply with a testing procedure established by this rule ~~or is subject to a variance or exemption under this rule~~, shall notify persons served by the system as follows:

(1) Except as provided in subdivision (3) or (4), the owner or operator of a public water system must give notice within three (3) months of the violation ~~or the granting of a variance or exemption~~ by publication in a daily newspaper of general circulation in the area served by the system. If the area served by a public water system is not served by a daily newspaper of general circulation, notice shall be given instead by publication in a weekly newspaper of general circulation serving the area.

(2) Except as provided in subdivision (3) or (4), following the initial notice given under subdivision (1), the owner or operator of the public water system must give notice at least once every three (3) months by mail delivery (by direct mail or with the water bill) or by hand delivery, for as long as the violation exists. ~~Repeat notice of the existence of a variance or exemption must be given every three (3) months for as long as the variance or exemption remains in effect.~~

(3) In lieu of the requirements of subdivisions (1) and (2), the following apply:

(A) The owner or operator of a community water system in an area that is not served by a daily or weekly newspaper of general circulation must give notice within three (3) months of the violation ~~or granting of a variance or exemption~~ by hand delivery or by continuous posting in conspicuous places within the area served by the system. Posting must continue for as long as the violation exists. ~~or as long as the variance or exemption remains in effect.~~ Notice by hand delivery must be repeated at least every three (3) months for as long as the violation exists. ~~or the variance or exemption remains in effect.~~

(B) The owner or operator of a noncommunity water system may give notice within three (3) months of the violation ~~or the granting of the variance or exemption~~ by hand delivery or by continuous posting in conspicuous places within the area served by the system. Posting must continue for as long as the violation exists. ~~or the variance or exemption remains in effect.~~ Notice by hand delivery must be repeated at least every three (3) months for as long as the violation exists. ~~or the variance or exemption remains in effect.~~

(4) In lieu of the requirements of subdivisions (1) through (3), the owner or operator of a public water system, at the discretion of the commissioner, may provide less frequent notice for minor monitoring violations as defined by the commissioner, if EPA has approved the commissioner's application for a program revision under 40 CFR 142.16. Notice of such violations must be given no less frequently than annually.

(e) The owner or operator of a community water system must give a copy of the most recent public notice for:

- (1) any outstanding violation of any MCL; ~~or~~
- (2) any treatment technique requirement; ~~or~~
- (3) ~~any variance or exemption schedule;~~

to all new billing units or new hookups prior to or at the time service begins.

(f) Each notice required by this section must provide a clear and readily understandable explanation of the following:

- (1) The violation.
- (2) Any potential adverse health effects.
- (3) The population at risk.
- (4) The steps that the public water system is taking to correct the violation.
- (5) The necessity for seeking alternative water supplies, if any.
- (6) Any preventive measures the consumer should take until the violation is corrected.

Each notice shall be conspicuous and shall not contain unduly technical language, unduly small print, or similar problems that frustrate the purpose of the notice. Each notice shall include the telephone number of the owner, operator, or designee of the public water system as a source of additional information concerning the notice. Where appropriate, the notice shall be multilingual.

**(g) All notices required under this section shall be submitted to the commissioner using the methods specified in section 13(e) of this rule.** (*Water Pollution Control Board; 327 IAC 8-2-15; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1032; filed Apr 12, 1993, 11:00 a.m.: 16 IR 2164; filed Aug 24, 1994, 8:15 a.m.: 18 IR 45*)

#### SECTION 16. 327 IAC 8-2-21 IS AMENDED TO READ AS FOLLOWS:

##### **327 IAC 8-2-21 Special monitoring for sodium**

**Authority:** IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3; IC 13-18-16

**Affected:** IC 13-11-2; IC 13-14-8; IC 13-18-1; IC 13-18-2

Sec. 21. (a) Suppliers of water for community public water systems shall collect and analyze one (1) sample per treatment plant at the entry point of the distribution system for the determination of sodium concentration levels. Samples must be collected and analyzed annually for systems utilizing surface water sources in whole or in part, and at least every three (3) years for systems utilizing solely ground water sources. The minimum number of samples required to be taken by the system shall be based on the number of treatment plants used by the system, except that multiple wells drawing raw water from a single aquifer may, with the commissioner's approval, be considered one (1) treatment plant for determining the minimum number of samples. The supplier of water may be required by the commissioner to collect and analyze water samples for sodium more frequently in locations where the sodium content is variable.

(b) The supplier of water shall report to the commissioner the results of the analyses for sodium within the first ten (10) days of the month following the month in which the sample results were received or within the first ten (10) days following the end of the required monitoring period as stipulated by the commissioner, whichever of these is first. If more than annual sampling is required, the supplier shall report the average sodium concentration within ten (10) days of the month following the month in which the analytical result of the last sample used for the annual average was received. **Systems shall submit information to the commissioner using the methods specified in section 13(e) of this rule.**

(c) The supplier of water shall notify the commissioner and appropriate local public health officials of the sodium levels by written notice by direct mail within three (3) months. A copy of each notice required to be provided by this subsection shall be sent to the commissioner within ten (10) days of its issuance. The supplier of water is not required to notify the commissioner and appropriate local public health officials of the sodium levels where the commissioner provides such notices in lieu of the supplier.

(d) Analyses for sodium shall be performed by the following methods:

- (1) Inductively coupled plasma, Method 200.7\*.
- (2) Atomic absorption; ~~adsorption~~; **absorption**; direct aspiration, Method 3111B\*.

\*Methods referenced in this section may be obtained as follows:

(1) Method 200.7 may be found in "Methods for the Determination of Metals in Environmental Samples-Supplement 1", EPA-600/R-94-111, May 1994, available from NTIS, ~~PB94-184942, PB95-104766, PB95-125472~~, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161.

(2) Method 3111B may be found in "Standard Methods for the Examination of Water and

Wastewater", 18th Edition, 1992, or **"Standard Methods for the Examination of Water and Wastewater", 19<sup>th</sup> Edition, 1995**, American Public Health Association, available from the American Public Health Association, 1015 Fifteenth Street N.W., Washington, D.C. 20005. **Either edition may be used.**

These methods are available for copying at the Indiana Department of Environmental Management, Office of Water Management, 100 North Senate Avenue, Room 1255, Indianapolis, ~~IN~~ **Indiana** 46204. (*Water Pollution Control Board; 327 IAC 8-2-21; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1039; filed Aug 25, 1997, 8:00 a.m.: 21 IR 68; errata filed Dec 10, 1997, 3:45 p.m.: 21 IR 1348*)

SECTION 17. 327 IAC 8-2-24 IS AMENDED TO READ AS FOLLOWS:

**327 IAC 8-2-24 Use of noncentralized treatment devices**

**Authority:** IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3; IC 13-18-16

**Affected:** IC 13-18

Sec. 24. ~~(a) Public water systems shall not use bottled water point-of-use, or point-of-entry treatment devices to achieve compliance with an MCL. (Upon approval by the commissioner, bottled water, point-of-use, or point-of-entry treatment devices may be used on a temporary basis to avoid an unreasonable risk to health.)~~

~~(b) The commissioner may require a public water system to use bottled water, point-of-use devices, or point-of-entry devices as a condition for granting an exemption from the requirements of sections 4, 5(a), and 5.4(a) of this rule.~~

~~(c) Public water systems using bottled water as a condition of obtaining an exemption from the requirements of sections 4, 5(a), and 5.4(a) of this rule must meet the requirements in section 28(f) of this rule.~~

~~(d) Public water systems that use point-of-use or point-of-entry devices as a condition for receiving an exemption from the requirements of sections 4, 5(a), and 5.4(a) of this rule must meet the requirements in section 28(g) of this rule. (Water Pollution Control Board; 327 IAC 8-2-24; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1042; filed Aug 24, 1994, 8:15 a.m.: 18 IR 65)~~

SECTION 18. 327 IAC 8-2-33 IS AMENDED TO READ AS FOLLOWS:

**327 IAC 8-2-33 Certified laboratories**

**Authority:** IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3; IC 13-18-16

**Affected:** IC 13-18

Sec. 33. (a) For the purpose of determining compliance with this rule, samples ~~shall be accepted~~ **may be considered** only if they have been analyzed by a laboratory certified by the commissioner, except that ~~measurement for turbidity, chlorine residual, temperature, and pH~~ **measurements for alkalinity, conductivity, disinfectant residual, orthophosphate, pH, silica, temperature, and turbidity** may be performed by any person acceptable to the commissioner.

(b) Nothing in this rule shall be construed to preclude the commissioner or any duly designated representative of the commissioner from taking samples or from using the results from such samples to determine compliance by a supplier of water with the applicable requirements of this rule. (*Water Pollution Control Board; 327 IAC 8-2-33; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1047; Filed Oct 24, 1997, 4:30 p.m.: 21 IR 940*)

SECTION 19. 327 IAC 8-2-45 IS AMENDED TO READ AS FOLLOWS:

**327 IAC 8-2-45 Analytical methods; lead and copper**

**Authority:** IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3; IC 13-18-16

**Affected:** IC 13-11-2; IC 13-14-8; IC 13-18-1; IC 13-18-2

Sec. 45. (a) Analysis for lead, copper, pH, conductivity, calcium, alkalinity, orthophosphate, silica, and temperature shall be conducted using the following methods:

(1) Lead as follows:

- (A) Atomic absorption; furnace technique, Method D3559-90D\*, **Method D2559-95D\***, or Method 3113B\*.
- (B) Inductively-coupled plasma; mass spectrometry, Method 200.8\*.
- (C) Atomic absorption; platform furnace technique, Method 200.9\*.
- (D) **Differential pulse anodic stripping voltammetry, Method 1001\*.**
- (2) Copper as follows:
  - (A) Atomic absorption; furnace technique, Method D1688-90C\*, **Method D1688-95C\***, or Method 3113B\*.
  - (B) Atomic absorption; direct aspiration, Method D1688-90A\*, **Method D1688-95A\***, or Method 3111B\*.
  - (C) Inductively-coupled plasma; Method 200.7\* or Method 3120B\*.
  - (D) Inductively-coupled plasma; mass spectrometry, Method 200.8\*.
  - (E) Atomic absorption; platform furnace, Method 200.9\*.
- (3) pH, electrometric, Method 150.1\*, Method 150.2\*, Method D1293-84\*, **Method D1293-95\***, or Method 4500-H<sup>+</sup>-B\*.
- (4) Conductivity, conductance, Method D1125-91A\*, **Method D1125-95A\***, or Method 2510B\*.
- (5) Calcium as follows:
  - (A) EDTA titrimetric, Method D511-93A\* or Method 3500-Ca-D\*.
  - (B) Atomic absorption; direct aspiration, Method D511-93B\* or Method 3111-B\*.
  - (C) Inductively-coupled plasma, Method 200.7 or Method 3120B\*.
- (6) Alkalinity as follows:
  - (A) Titrimetric, Method D1067-92B\* or Method 2320B.
  - (B) Electrometric titration, Method I-1030-85\*.
- (7) Orthophosphate, unfiltered, no digestion or hydrolysis as follows:
  - (A) Colorimetric, automated, ascorbic acid, Method 365.1\* or Method 4500-P-F\*.
  - (B) Colorimetric, ascorbic acid, single reagent, Method D515-88A\* or Method 4500-P-E\*.
  - (C) Colorimetric, phosphomolybdate, Method I-1601-85\* or automated-segmented flow, Method I-2601-90\*, or automated discrete, Method I-2598-85\*.
  - (D) Ion chromatography, Method 300.0\*, Method D4327-91\*, or Method ~~4110-~~**4110B\***.
- (8) Silica as follows:
  - (A) Colorimetric, molybdate blue, Method I-1700-85 or automated-segmented flow, Method I-2700-85\*.
  - (B) Colorimetric, Method D859-88\* **or Method D859-95\***.
  - (C) Molybdosilicate, Method 4500-Si-D\*.
  - (D) Heteropoly blue, Method 4500-Si-E\*.
  - (E) Automated method for molybdate-reactive silica, Method 4500-Si-F\*.
  - (F) Inductively-coupled plasma, Method 200.7\* or Method 3120B\*.
- (9) Temperature, thermometric, Method ~~2550B\*~~ **2550\***.

~~(b) Analysis under this section shall only be conducted by laboratories that have been certified by EPA or the state.~~ **Analyses for alkalinity, calcium, conductivity, orthophosphate, pH, silica, and temperature may be performed by any person acceptable to the commissioner. Analyses under this section for lead and copper shall only be conducted by laboratories that have been certified by the EPA or the commissioner.** To obtain certification to conduct analysis for lead and copper, laboratories must do the following:

- (1) **Successfully** analyze performance evaluation (PE) samples which include lead and copper provided by EPA ~~Environmental Monitoring and Support Laboratory or equivalent samples provided by the state.~~ **or acceptable to EPA or the commissioner at least once each year by each method for which the laboratory desires certification.**
- (2) Achieve quantitative acceptance limits as follows:
  - (A) For lead, plus or minus thirty percent (30%) of the actual amount in the performance evaluation sample when the actual amount is greater than or equal to five-thousandths (0.005) milligram per liter.
  - (B) For copper, plus or minus ten percent (10%) of the actual amount in the performance evaluation sample when the actual amount is greater than or equal to five-thousandths (0.005) milligram per liter.
- (3) Achieve ~~the method detection limits~~ **limit for lead of one-thousandth (0.001)**

**milligram per liter** according to the procedures in Appendix B of 40 CFR 136 (July 1, 1991). ~~as follows: This need only be done if the laboratory will be processing source water composite samples under section 39 of this rule.~~

~~(A) For lead, one one-thousandth (0.001) milligram per liter (only if source water compositing is done under section 4.1(e)(4) of this rule).~~

~~(B) For copper, one one-thousandth (0.001) milligram per liter when atomic absorption direct aspiration is used (only if source water compositing is done under section 4.1(e)(4) of this rule).~~

(4) Be currently certified by EPA or the state to perform analyses to the specifications described in subsection (a)(2).

(c) The commissioner has the authority to allow the use of previously collected monitoring data for purposes of monitoring if the data were collected and analyzed in accordance with the requirements of sections 36 through 44 of this rule, this section, and sections 46 and 47 of this rule.

(d) All lead levels measured between the practical quantitation level and the method detection limit must be either reported as measured or they can be reported as one-half ( $\frac{1}{2}$ ) the practical quantitation level (twenty-five thousandths (0.025) milligram per liter). All levels below the lead method detection level must be reported as zero (0).

(e) All copper levels measured between the practical quantitation level and the method detection limit must be either reported as measured or they can be reported as one-half ( $\frac{1}{2}$ ) the practical quantitation level (twenty-five thousandths (0.025) milligram per liter). All levels below the copper method detection limit must be reported as zero (0).

For analyzing lead and copper, the technique applicable to total metals must be used and samples cannot be filtered.

\*Methods referenced in this section may be obtained as follows:

(1) Methods 150.1 and 150.2, ~~available from U.S. EPA, EMSL, Cincinnati, Ohio 45268, (513) 569-7586. may be found in "Methods for Chemical Analysis of Water and Wastes", EPA/600/4-79/020, March 1983, available from NTIS, PB84-128677, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161.~~

(2) Methods 200.7, 200.8, and 200.9 may be found in "Methods for the Determination of Metals in Environmental Samples-Supplement 1", EPA-600/R-94-111, May 1994, available from NTIS, ~~PB 94-184942, PB95-125472~~, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161.

(3) Methods D3559-90D, D1688-90C, D1688-90A, D1293-84, D1125-91A, ~~D511-93A, D511-93B, D1067-92B, D515-88A, D4327-91, and D859-88~~ may be found in "Annual Book of ASTM Standards", Vols. 11.01, ~~and 11.02~~, 1994, American Society for Testing and Materials, available from the American Society for Testing and Materials, ~~1916 Race Street, Philadelphia, Pennsylvania 19103. 100 Barr Harbor Drive, West Conshohocken, Pennsylvania 19428.~~

(4) Methods ~~D1067-92B, D511-93A, D511-93B, D1688-95C, D1688-95A, D1125-95A, D3559-95D, D515-88A, D4327-91, D1293-95, and D859-95~~ may be found in "Annual Book of ASTM Standards, Vols. 11.01 and 11.02, 1994 and 1996, available from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, Pennsylvania 19428.

~~(4) (5) Methods 2320B, 3113B, 3111B, 3120B, 4500-H<sup>+</sup>-B, 2510B, 3500-Ca-D, 2320B, 4500-P-F, 4500-P-E, 4110, 4110B, 4500-Si-D, 4500-Si-E, 4500-Si-F, and 2550B 2550~~ may be found in "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, ~~and "Standard Methods for the Examination of Water and~~  
~~<sup>th</sup> Edition, 1995~~, American Public Health Association, available from the American Public Health Association, 1015 Fifteenth Street N.W., Washington, D.C. 20005. **Either edition may be used.**

~~(5) (6) Methods I-1030-85, I-1601-85, I-2601-90, I-2598-85, I-1700-85, and I-2700-85, may be found in "Techniques of Water Resources Investigation of the U.S. Geological Survey", Book 5, Chapter A-1, 3<sup>rd</sup> Edition, 1989, available from Books and Open File Reports Section, Information Services, U.S. Geological Survey, Federal Center, Box 25425, 25286, Denver, Colorado 80225-0425.~~

(7) Method I-2601-90 may be found in "Methods for Analysis by the U.S. Geological Survey National Water Quality Laboratory - Determination of Inorganic and

**Organic Constituents in Water and Fluvial Sediments", Open File Report 93-125, 1993, available from Information Services, U.S. Geological Survey, Federal Center, Box 25286, Denver, Colorado 80225-0425.**

~~(6)~~ (8) Methods 365.1 and 300.0 may be found in "Methods for the Determination of Inorganic Substances in Environmental Samples", EPA-600/R-93-100, August 1993, available from NTIS, ~~PB94-121811~~, **PB94-120821**, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161.

**(9) Method 1001 is available from Palintest, LTC, 21 Kenton Lands Road, P.O. Box 18395, Erlanger, Kentucky 41018 or from the Hach Company, P.O. Box 389, Loveland, Colorado 80539-0389.**

These methods are also available for copying at the Indiana Department of Environmental Management, Office of Water Management, 100 North Senate Avenue, ~~N1254~~, **Room 1255**, Indianapolis, ~~IN~~ **Indiana** 46204. (*Water Pollution Control Board; 327 IAC 8-2-45; filed Aug 24, 1994, 8:15 a.m.: 18 IR 82; errata filed Oct 11, 1994, 2:45 p.m.: 18 IR 532; filed Aug 25, 1997, 8:00 a.m.: 21 IR 72; errata filed Dec 10, 1997, 3:45 p.m.: 21 IR 1349*)

SECTION 20. 327 IAC 8-2-46 IS AMENDED TO READ AS FOLLOWS:

**327 IAC 8-2-46 Reporting requirements; lead and copper**

**Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3; IC 13-18-16**

**Affected: IC 13-18**

Sec. 46. (a) Reporting requirements for tap water monitoring for lead and copper and for water quality parameter monitoring shall be as follows:

(1) A water system shall report the following information for all tap water samples within the first ten (10) days following the end of each applicable monitoring period specified in sections 37 and 38 of this rule (i.e., every six (6) months, annually, or every three (3) years):

(A) The results of all tap samples for lead and copper, including the location of each site and the criteria under section 37(a)(3) through 37(a)(7) of this rule, or any, under which the site was selected for the system's sampling pool.

(B) A certification that each first draw sample collected by the water system is one (1) liter in volume and, to the best of their knowledge, has stood motionless in the service line, or in the interior plumbing of a sampling site, for at least six (6) hours.

(C) Where residents collected samples, a certification that each tap sample collected by the residents was taken after the water system informed them of proper sampling procedures specified in section 37(b)(2) of this rule.

(D) The ninetieth percentile lead and copper concentrations measured from among all lead and copper tap samples collected during each monitoring period (calculated in accordance with section 36(c)(3) of this rule).

(E) With the exception of initial tap sampling conducted under section 37(d)(1) of this rule, the system shall designate any site which was not sampled during previous monitoring periods and include an explanation of why sampling sites have changed.

(F) The results of all tap samples for pH, and where applicable, alkalinity, calcium, conductivity, temperature, and orthophosphate or silica collected under section 38(c) through 38(f) of this rule.

(G) The results of all samples collected at the entry point to the distribution system for applicable water quality parameters under section 38(c) through 38(f) of this rule.

(2) By the applicable date in section 37(d)(1) of this rule for commencement of monitoring, each community water system which does not complete its targeted sampling pool with tier one (1) sampling sites meeting the criteria in section 37(a)(3) of this rule shall send a letter to the commissioner justifying its selection of tier two (2) or tier three (3) sampling sites, or both, under section 37(a)(4) or 37(a)(5) of this rule, or both.

(3) By the applicable date in section 37(d)(1) of this rule for commencement of monitoring, each nontransient noncommunity water system which does not complete its sampling pool with tier one (1) sampling sites meeting the criteria in section 37(a)(6) of this rule shall send a letter to the commissioner justifying its selection of sampling sites under section 37(a)(7) of this rule.



(4) By the applicable date in section 37(d)(1) of this rule for commencement of monitoring, each water system with lead service lines that is not able to locate the number of sites served by such lines required under section 37(a)(9) of this rule shall send a letter to the commissioner demonstrating why it was unable to locate a sufficient number of sites based on the information listed in section 37(a)(2) of this rule.

(5) Each water system that requests that the commissioner reduce the number and frequency of sampling shall provide the information required under section 37(d)(4) of this rule.

(b) Source water monitoring reporting requirements shall be as follows:

(1) A water system shall report the sampling results for all source water samples collected in accordance with section 39 of this rule within the first ten (10) days following the end of each source water monitoring period (i.e., annually, per compliance period, per compliance cycle) specified in section 39 of this rule.

(2) With the exception of the first round of source water sampling conducted under section 39(b) of this rule, the system shall specify any site which was not sampled during previous monitoring periods and include an explanation of why the sampling point has changed.

(c) This subsection establishes requirements for corrosion control treatment reporting. By the applicable dates under section 40 of this rule, systems shall report the following information:

(1) For systems demonstrating that they already have optimized corrosion control, information required in section 40(b)(2) or 40(b)(3) of this rule.

(2) For systems required to optimize corrosion control, their recommendation regarding optimal corrosion control treatment under section 41(a) of this rule.

(3) For systems required to evaluate the effectiveness of corrosion control treatments under section 41(c) of this rule, the information required under that subsection.

(4) For systems required to install optimal corrosion control designated by the commissioner under section 41(d) of this rule, a letter certifying that the system has completed installing that treatment.

(d) This subsection establishes requirements for source water treatment reporting. By the applicable dates in section 42 of this rule, systems shall provide the following information to the commissioner:

(1) If required under section 42(b)(1) of this rule, their recommendation regarding source water treatment.

(2) For systems required to install source water treatment under section 42(b)(2) of this rule, a letter certifying that the system has completed installing the treatment designated by the commissioner within twenty-four (24) months after the commissioner designated the treatment.

(e) This subsection establishes requirements for lead service line replacement reporting. Systems shall report the following information to the commissioner to demonstrate compliance with the requirements of section 43 of this rule:

(1) Within twelve (12) months after a system exceeds the lead action level in sampling referred to in section 43(a) of this rule, the system shall demonstrate in writing to the commissioner that it has conducted a material evaluation, including the evaluation in section 37(a) of this rule, to identify the initial number of lead service lines in its distribution system, and shall provide the commissioner with the system's schedule for replacing annually at least seven percent (7%) of the initial number of lead service lines within its distribution system.

(2) Within twelve (12) months after a system exceeds the lead action level in sampling referred to in section 43(a) of this rule, and every twelve (12) months thereafter, the system shall demonstrate to the commissioner in writing that the system has done either of the following:

(A) Replaced in the previous twelve (12) months, at least seven percent (7%) of the initial lead service lines (or a greater number of lines specified by the commissioner under section 43(f) of this rule) in its distribution system.

(B) Conducted sampling which demonstrates that the lead concentration in all service line samples from an individual line, taken under section 37(b)(3) of this rule, is less than or equal to fifteen-thousandths (0.015) milligram per liter. In

such cases, the total number of lines replaced and which meet the criteria in section 43(b) of this rule, shall equal at least seven percent (7%) of the initial number of lead lines identified under subsection (a) (or the percentage specified by the commissioner under section 43(f) of this rule).

(3) The annual letter submitted to the commissioner under subdivision (2) shall contain the following information:

(A) The number of lead service lines scheduled to be replaced during the previous year of the system's replacement schedule.

(B) The number and location of each lead service line replaced during the previous year of the system's replacement schedule.

(C) If measured, the water lead concentration and location of each service line sampled, the sampling method, and the date of sampling.

(4) As soon as practicable, but in no case later than three (3) months after a system exceeds the lead action level in sampling referred to in section 43(a) of this rule, any system seeking to rebut the presumption that it has control over the entire lead service line under section 43(d) of this rule shall submit a letter to the commissioner describing the legal authority, such as state statutes, municipal ordinances, public service contracts, or other applicable legal authority which limits the system's control over the service lines and the extent of the system's control.

(f) This subsection establishes requirements for public education program reporting. By December 31 of each year, any water system that is subject to the public education requirements in section 44 of this rule shall submit a letter to the commissioner demonstrating that the system has delivered the public education materials that meet the content requirements in section 44(a) and 44(b) of this rule and the delivery requirements in section 44(c) of this rule. This information shall include a list of all the newspapers, radio stations, television stations, facilities, and organizations to which the system delivered public education materials during the previous year. The water system shall submit the letter required by this subsection annually for as long as it exceeds the lead action level.

(g) Any system ~~which~~ **that** collects sampling data in addition to that required by sections 36 through 45 of this rule, this section, and section 47 of this rule shall report the results to the commissioner within the first ten (10) days following the end of the applicable monitoring period under sections 37 through 39 of this rule during which the samples are collected.

**(h) The information required by this section shall be submitted to the commissioner using the methods specified in section 13(e) of this rule. (Water Pollution Control Board; 327 IAC 8-2-46; filed Aug 24, 1994, 8:15 a.m.: 18 IR 84; filed Oct 24, 1997, 4:30 p.m.: 21 IR 945)**

SECTION 21. 327 IAC 8-2.1-3, AS ADDED AT 23 IR 1899, SECTION 1, IS AMENDED TO READ AS FOLLOWS:

**327 IAC 8-2.1-3 Content of the reports**

**Authority: IC 13-13-5-1; IC 13-13-5-2; IC 13-18-16-6; IC 13-18-16-7; IC 13-18-16-9**

**Affected: IC 13-18-16**

Sec. 3. (a) ~~Each~~ **A** community water system shall provide to its customers an annual report that contains the information specified in this section and section 4 of this rule.

(b) The report ~~shall~~ **must** contain information on the source of the water delivered, including the following:

(1) ~~Each report shall identify~~ The source or sources of water delivered by the community water system by ~~providing~~ **including** information on:

(A) the type of water, such as surface water or ground water; and

(B) the commonly used name, if any, and location of the body or bodies of water.

(2) If a source water assessment has been completed, the report ~~shall~~ **must** notify the consumers of the availability of this information and the means to obtain it. In addition, systems are encouraged to highlight in the report significant sources of contamination in the source water area if they have readily available information. Where a system has received a source water assessment from the commissioner, the report ~~shall~~ **must** include a brief summary of the system's susceptibility to potential sources of contamination,

using language provided by the commissioner or written by the operator.

(c) ~~Each~~ **The report shall must** include the following definitions **as applicable**:

(1) "Maximum contaminant level goal" or "MCLG" means the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

(2) "Maximum contaminant level" or "MCL" means the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

~~(3) A report for a community water system operating under a variance or exemption issued under 327 IAC 8-2-25 shall include, "variances and exemptions" means that state or U.S. Environmental Protection Agency (EPA) permission not to meet an MCL or a treatment technique under certain conditions.~~

~~(4)~~ (3) A report that contains data on a contaminant for which the department ~~of environmental management~~ or EPA has set a treatment technique or an action level **shall must** include one (1) or both of the following definitions, as applicable:

(A) "Treatment technique" means a required process intended to reduce the level of a contaminant in drinking water.

(B) "Action level" means the concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a water system shall follow.

~~(d) This subsection specifies the requirements for~~ **A report must include the** information to be included in each report **specified in this subsection** for the following contaminants subject to mandatory monitoring, other than *Cryptosporidium*: ~~It applies to the following contaminants:~~

(1) Contaminants subject to an MCL, action level, or treatment technique, hereafter referred to as regulated contaminants.

~~(2) Contaminants for which monitoring is required by 327 IAC 8-2-23, hereafter referred to as unregulated contaminants.~~

~~(3)~~ (2) Disinfection byproducts or microbial contaminants for which monitoring is required by 40 CFR 141.142\* and 40 CFR 141.143\* , except as provided in subsection (e)(1), and that are detected in the finished water.

~~(4)~~ (3) The data relating to these contaminants must be displayed in one (1) table or in several adjacent tables. Any additional monitoring results that a community water system chooses to include in its report must be displayed separately.

~~(5)~~ (4) The data **shall must** be derived from data collected to comply with EPA and department monitoring and analytical requirements during calendar year 1998 for the first report and subsequent calendar years thereafter, except the following:

(A) Where a system is allowed to monitor for regulated contaminants less often than once a year, the table or tables **shall must** include the date and results of the most recent sampling, and the report **shall must** include a brief statement indicating that the data presented in the report are from the most recent testing done in accordance with the regulations. No data older than five (5) years need be included.

(B) Results of monitoring in compliance with 40 CFR 141.142\* and 40 CFR 141.143\* need only be included for five (5) years from the date of the last sample or until any of the detected contaminants becomes regulated and subject to routine monitoring requirements, whichever comes first.

~~(6)~~ (5) For detected regulated contaminants listed in section 6(a) of this rule, the table or tables **shall must** contain the following information:

(A) The MCL for that contaminant expressed as a number equal to or greater than one and zero tenths (1.0), as listed in section 6(a) of this rule.

(B) The MCLG for that contaminant expressed in the same units as the MCL.

(C) If there is no MCL for a detected contaminant, the table **shall must** indicate that there is a treatment technique, or specify the action level, applicable to that contaminant, and the report shall include the definitions for treatment technique or action level, or both, as appropriate, specified in subsection (c)(4).

(D) For contaminants subject to an MCL, except turbidity and total coliforms, the highest contaminant level used to determine compliance with this rule and the range of detected levels as follows:

(i) When compliance with the MCL is determined annually or less frequently, the highest detected level at any sampling point and the range

of detected levels expressed in the same units as the MCL.

(ii) When compliance with the MCL is determined by calculating a running annual average of all samples taken at a sampling point, the highest average of any of the sampling points and the range of all sampling points expressed in the same units as the MCL.

(iii) When compliance with the MCL is determined on a system-wide basis by calculating a running annual average of all samples at all sampling points, the average and range of detection expressed in the same units as the MCL.

(E) When turbidity is reported pursuant to 327 IAC 8-2-8.8, the highest single measurement and the lowest monthly percentage of samples meeting the turbidity limits specified in 327 IAC 8-2-8.8 for the filtration technology being used. The report must include an explanation of the reasons for measuring turbidity.

(F) For lead and copper, the ninetieth percentile value of the most recent round of sampling and the number of sampling sites exceeding the action level.

(G) For total coliform, the highest monthly:

(i) number of positive samples for systems collecting fewer than forty (40) samples per month; or

(ii) percentage of positive samples for systems collecting at least forty (40) samples per month.

(H) For fecal coliform, the total number of positive samples.

(I) The likely source or sources of detected contaminants to the best of the operator's knowledge. Specific information regarding contaminants may be available in sanitary surveys and source water assessments, and must be used when available to the operator. If the operator lacks specific information on the likely source, the report must include one (1) or more of the typical sources for that contaminant listed in section 6(b) of this rule that are most applicable to the system.

~~(7)~~ (6) If a community water system distributes water to its customers from multiple hydraulically independent distribution systems that are fed by different raw water sources:

(A) the table ~~shall~~ **must** contain a separate column for each service area and the report ~~shall~~ **must** identify each separate distribution system; ~~Alternatively, systems or~~

(B) ~~the system~~ may produce separate reports tailored to include data for each service area.

~~(8)~~ (7) The table ~~or tables~~ **must** clearly identify any data indicating violations of MCLs or treatment techniques, and the report ~~shall~~ **must** contain a clear and readily understandable explanation of the violation, including the length of the violation, the potential adverse health effects, and actions taken by the system to address the violation. To describe the potential health effects, the system shall use the relevant language of section 6(c) of this rule.

~~(9) For detected unregulated contaminants for which monitoring is required, other than Cryptosporidium, the table or tables must contain the average and range at which the contaminant was detected. The report may include a brief explanation of the reasons for monitoring for unregulated contaminants.~~

(e) **Each report must contain** the following information on Cryptosporidium, radon, and other contaminants: ~~is required~~

(1) If the system has performed any monitoring for Cryptosporidium, including monitoring performed to satisfy the requirements of 40 CFR 141.143\*, that indicates Cryptosporidium may be present in the source water or the finished water, the report ~~shall~~ **must** include:

(A) a summary of the results of the monitoring; and

(B) an explanation of the significance of the results.

(2) If the system has performed any monitoring for radon that indicates radon may be present in the finished water, the report ~~shall~~ **must** include:

(A) the results of the monitoring; and

(B) an explanation of the significance of the results.

(3) If the system has performed additional monitoring that indicates the presence of other contaminants in the finished water, the commissioner strongly encourages systems to

report any results that may indicate a health concern. To determine if results may indicate a health concern, the commissioner recommends that systems find out if EPA has proposed a National Primary Drinking Water Regulation (NPDWR) or issued a health advisory for that contaminant by calling the Safe Drinking Water Hotline at (800) 426-4791. The commissioner ~~considers~~ **and EPA consider** levels detected above a proposed federal or state MCL or health advisory level to indicate possible health concerns. For such contaminants, the commissioner recommends that the report includes:

- (A) the results of the monitoring; and
- (B) an explanation of the significance of the results noting the existence of a health advisory or a proposed regulation.

(f) In addition to the requirements of subsection ~~(d)(6)~~, **(d)(5)**, the report ~~shall~~ **must** note any violation **of a requirement listed in this subsection** that occurred during the year covered by the report, ~~of a requirement listed in this subsection~~, and include a clear and readily understandable explanation of the violation, any potential adverse health effects, and the steps the system has taken to correct the violation. ~~The Violations that shall of the following requirements must be included: are as follows:~~

- (1) Monitoring and reporting of compliance data.
- (2) Filtration and disinfection prescribed by 327 IAC 8-2-8.5 and 327 IAC 8-2-8.6. For systems that have failed to install adequate filtration or disinfection equipment or processes, or have had a failure of such equipment or processes that constitutes a violation, the report ~~shall~~ **must** include the following language as part of the explanation of potential health effects, "inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches."
- (3) Lead and copper control requirements prescribed by 327 IAC 8-2-36 through 327 IAC 8-2-47. For systems that fail to take one (1) or more actions prescribed by 327 IAC 8-2-36(d) or 327 IAC 8-2-40 through 327 IAC 8-2-43, the report must include the applicable language from section 6(c) of this rule for lead or copper, ~~the highest monthly or both.~~
- (4) Treatment techniques for acrylamide and epichlorohydrin prescribed by 327 IAC 8-2-3.5. For systems that violate 327 IAC 8-2-32, the report shall include the relevant language from section 6(c) of this rule.
- (5) Record keeping of compliance data.
- (6) Special monitoring requirements prescribed by 327 IAC 8-2-21. ~~or 327 IAC 8-2-23.~~
- (7) Violation of the terms of a ~~variance, an exemption, or~~ an administrative or judicial order.

~~(g) If a system is operating under a variance or an exemption issued under 327 IAC 8-2-25 through 327 IAC 8-2-28, the report shall contain the following information:~~

- ~~(1) An explanation of the reasons for the variance or exemption.~~
- ~~(2) The date on which the variance or exemption was issued.~~
- ~~(3) A brief status report on the steps the system is taking to install treatment, find alternative sources of water, or otherwise comply with the terms and schedules of the variance or exemption.~~
- ~~(4) A notice of any opportunity for public input into the review, or renewal, of the variance or exemption.~~

~~(h)~~ **(g) The following** additional information ~~that shall~~ **must** be contained in the report: ~~is as follows:~~

- (1) ~~The report shall contain~~ A brief explanation regarding contaminants that may reasonably be expected to be found in drinking water, including bottled water. This explanation may include the language in clauses (A) through (C), or systems may use their own comparable language. The report ~~shall~~ **must** also include the language of clause (D). The language is as follows:
  - (A) The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals, and in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.
  - (B) Contaminants that may be present in source water include the following:

- (i) Microbial contaminants, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- (ii) Inorganic contaminants, such as salts and metals, that can be naturally-occurring or result from urban stormwater run-off, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- (iii) Pesticides and herbicides, that may come from a variety of sources, such as agriculture, urban stormwater run-off, and residential uses.
- (iv) Organic chemical contaminants, including synthetic and volatile organic chemicals, that are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater run-off, and septic systems.
- (v) Radioactive contaminants, that can be naturally-occurring or be the result of oil and gas production and mining activities.

(C) In order to ensure that tap water is safe to drink, the department and EPA prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. Federal Drug Administration (FDA) regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

(D) Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at (800) 426-4791.

(2) ~~The report shall include the~~ telephone number of the owner, operator, or designee of the community water system as a source of additional information concerning the report.

(3) In communities with a large proportion of non-English speaking residents, ~~defined as in which~~ twenty percent (20%) or more of the residents ~~speaking speak~~ the same language other than English, the report ~~shall~~ **must** contain information in the appropriate language or languages regarding the importance of the report or contain a telephone number or address where such residents may contact the system to obtain a translated copy of the report or assistance in the appropriate language.

(4) The report ~~shall~~ **must** include information ~~which~~ **about opportunities for public participation in decisions that may affect the quality of water. This information** may include, but is not limited to, the time and place of regularly scheduled board ~~meeting,~~ **meetings,** ~~about opportunities for public participation in decisions that may affect the quality of water.~~

(5) The systems may include such additional information as they deem necessary for public education consistent with, and not detracting from, the purpose of the report.

\* The Code of Federal Regulations (CFR) citations are incorporated by reference into this rule and are available from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402 or from the Indiana Department of Environmental Management, Office of Water Management, Indiana Government Center-North, Twelfth Floor, Room 1255, 100 North Senate Avenue, Indianapolis, Indiana 46206. (*Water Pollution Control Board; 327 IAC 8-2.1-3; filed Mar 22, 2000, 3:23 p.m.: 23 IR 1899*)

SECTION 22. THE FOLLOWING ARE REPEALED: 327 IAC 8-2-6; 327 IAC 8-2-6.1; 327 IAC 8-2-23; 327 IAC 8-2-25; 327 IAC 8-2-26; 327 IAC 8-2-27; 327 IAC 8-2-28.